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SPECIAL PUBLICATION ARLCD-SP-82002

FEDERAL AND STATE LAWS AND SAFETY CONSIDERATIONS RELATING TO FIREWORKS IN THE UNITED STATES

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MAY 1982

US ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
LARGE CALIBER
WEAPON SYSTEMS LABORATORY
DOVER, NEW JERSEY

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Special Publication ARLCD-SP-82002	2. GOVT ACCESSION NO. AD-A115609	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Federal and State Laws and Safety Considerations Relating to Fireworks in the United States		5. TYPE OF REPORT & PERIOD COVERED 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Arthur Lusardi		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS ARRADCOM, LCWSL Energetic Materials Division (DRDAR-LCE) Dover, NJ 07801		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS ARRADCOM, TSD STINFO Div (DRDAR-TSS) Dover, NJ 07801		12. REPORT DATE May 1982 13. NUMBER OF PAGES 187
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Display fireworks	State laws and regulations	Sale and use
Common fireworks	Transportation	Department of Treasury
Class B explosives	Storage	
Class C explosives	Distribution	Safety precautions
Federal laws and regulations	Handling	Safety hazards (cont)

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The purpose of this investigation was to make a survey of the various Federal and State laws and regulations governing the importation, manufacture, transportation, storage, distribution, handling, sale, and use of fireworks in the United States. Safety precautions demanded by pyrotechnic compositions in their manufacture and use are also covered. This survey is part of a multination effort to collect a repository of information that might be helpful in reducing harmful accidents associated with fireworks. The investigation revealed (cont)

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UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

19. KEY WORDS (CONTINUED):

Particle size
Consumer Product Safety Commission
Oxidizing agents
Liquid vehicles
Fatalities
Department of Transportation
Chlorate mixtures
Water reactive materials
Mixing
Injuries

20. ABSTRACT (CONTINUED):

that the laws and regulations are ineffective since a contradictory situation exists as evidenced by the existence of strict regulations in some states alongside others with complete pyrotechnic freedom. This problem could be minimized by uniform legislation throughout the 50 states and more active cooperation between Federal and local agencies.

SUMMARY

An investigation into the Federal Agencies that regulate some aspect of the fireworks industry and control their ultimate use include:

Department of Treasury - Bureau of Alcohol, Tobacco, and Firearms (ATF).

Department of Transportation (DOT) - Bureau of Explosives.

Consumer Product Safety Commission.

Under Title XI of the Organized Crime Control Act of 1970 (18 USC Chapter 40), the ATF under the Department of Treasury has been charged with the responsibility for regulating the importation, manufacture, distribution, and storage of explosive materials. These materials include special or display fireworks, which fall under the category of low explosives and are classified as Class B explosives by the DOT. This class includes all fireworks which are designed to produce an audible effect and contain a pyrotechnic charge in excess of two grains. Such items as cherry bombs, silver salutes, and M-80's are included in the display fireworks category because they normally contain more than two grains of pyrotechnic charge. A list of display fireworks is listed in 49 CFR 173.88 (d) (appendix A). Common fireworks, which are classified by the DOT as Class C explosives, are exempted from regulation by the Department of Treasury. Common fireworks are generally small visible effects fireworks, but also included are small firecrackers less than 1/2 inch in length and 1/4 inch in diameter with a pyrotechnic charge of less than two grains. A list of common fireworks is also contained in 49 CFR 173.100 (r) (appendix A). Fireworks of this type are distributed and sold in the finished state for personal use in compliance with state laws or local ordinances.

Restrictions pertaining to the transportation of explosive materials in the U.S. via railroad, water, highway, or air are regulated by the DOT. This authority is vested in the DOT under the Hazardous Materials Transportation Act (49 USC 1801) and other acts [appendix B para 181.141 (a)] (ref 4).

The Consumer Product Safety Commission, by the authority vested in it under the Federal Hazardous Substances Act, as amended by the Child Protection Act of 1966, regulates many aspects of the sale of common fireworks in states where they are legally sold. The Commission is responsible for enforcing proper labelling and compliance with the provision for directions, performance specifications, and necessary precautions for fireworks intended for consumer use. The Commission also is responsible for making sure that dangerous explosive fireworks, such as cherry bombs and other larger firecrackers with more than 50 milligrams of powder, are not sold to consumers.

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OBJECTIVE

To conduct a literature search and make a survey of the various federal and state laws and regulations that govern the importation, manufacture, transportation, storage, distribution, handling, sale, and use of fireworks. Safety considerations were also included. This survey is part of a multi-nation effort to collect a repository of information that might be helpful in reducing the number of tragedies attributable to fireworks.

BACKGROUND

In response to an inquiry by Dr. H.J. Pasman, Director of Technological Research, Prins Maurits Laboratorium TNO, Ryswijk, the Netherlands (appendix C), an investigation was conducted of the laws and regulations governing the importation, manufacture, transportation, storage, distribution, handling, sale, and use of fireworks in the U.S. This information, combined with contributions from other countries, will be used in the construction of a repository of information that might be helpful in reducing the incidence of deaths, personal injuries, and property damage attributable to fireworks. In addition to laws and regulations, information was provided covering the safety precautions demanded by pyrotechnic compositions in their manufacture and use. The hazards of processing and handling specific pyrotechnic ingredients, with special regard to their explosive behavior under certain circumstances in the manufacturing area, were also discussed. The U.S. Army Armament Research and Development Command (ARRADCOM) will receive the results of Dr. Pasman's multi-nation survey upon completion.

In addition to the above information, the investigation revealed that the fireworks industry in the U.S. has been on the decline since World War II, and many companies have ceased production in recent years. The main reasons for this decline are due to restrictive legislation in many states, and the banning of mail order sales. Also competition from Japan, Hong Kong, and Macao has secured a considerable portion of the U.S. market. Yet in spite of these setbacks, it is still a multi-million dollar industry that manufactures products responsible for tragedies and property damage that occur each year through their careless use or misuse.

RESULTS OF INVESTIGATION

In response to Dr. Pasman's inquiry (appendix C) concerning the hazards and regulation of fireworks, an investigation was made of the laws that have been established in the U.S. to control the manufacture, distribution, transportation, storage, sale, and use of fireworks and the regulations which implement these controls. The investigation generated the information found below and in the appendices.

In addition to applicable legal restrictions, information has also been provided covering the safety precautions demanded by pyrotechnic compositions in their manufacture and use. The hazards of processing and handling specific pyro-

technic ingredients with special regard to their explosive behavior under certain circumstances in the manufacturing area are also described. It is hoped that this information will contribute towards the success of Dr. Pasman's multi-nation firework safety survey.

It has been recognized for years in this country that fireworks, for all their patriotic associations, present a very serious safety hazard especially for children. Each year tragedy mars Fourth of July celebrations when youngsters injure themselves using or misusing fireworks. Deaths, blindings, amputations, and severe burns have been all too often the result of fireworks misuse (see appendix D).

The trend of accident increases prompted the federal government to act. Under the Federal Hazardous Substances Act and the Child Protection Act of 1966, the government prohibited the sale to consumers of the most dangerous types of fireworks. These included cherry bombs, aerial bombs, silver salutes, M-80 salutes, and larger firecrackers containing more than two grains of powder. Also banned were mail-order kits designed to build these fireworks.

In a more stringent regulation that went into effect 6 December 1976, the U.S. Consumer Product Safety Commission lowered the permissible charge in firecrackers to no more than 50 milligrams of powder. In addition, the new regulation requires performance specifications for fireworks intended for consumer use, including a requirement that fuses burn at least 3 seconds, but no longer than 6 seconds. All fireworks must carry a warning label describing necessary safety precautions. It is encouraging to note that the national injury rate has gone down almost 40% since the tougher regulations went into effect in 1976.

In addition to federal regulations, many state and local governments prohibit or limit Class C fireworks which are the common fireworks sold for consumer use (see appendix A, para 173.100 (r)). At present, Hawaii and Nevada have no firework restrictions at all; 33 states and Washington, DC allow some or all "common" fireworks, and 15 states ban all fireworks. The following is a summary of state regulations as of July 1977:

States Allowing All Class C Fireworks

Alaska
Arkansas
Louisiana
Mississippi
Missouri
South Dakota
Tennessee

States Allowing Class C Fireworks Approved by Enforcing Authority

California
Kansas
Nebraska
New Mexico
Washington

States Allowing Class C Fireworks as Specified in Law

District of Columbia
Idaho
Montana
North Dakota
Oklahoma
South Carolina
Texas
Wyoming

States Allowing Only Sparklers and/or Snakes

Sparklers	Snakes and Sparklers
Alabama	Indiana
Colorado	Iowa
Florida	Kentucky
Maine	Michigan
Maryland	Oregon
Pennsylvania	Wisconsin
Utah	
Virginia	

States Which Ban All Class C Fireworks

Arizona	Massachusetts	North Carolina
Connecticut	Minnesota	Ohio
Delaware	New Hampshire	Rhode Island
Georgia	New Jersey	Vermont
Illinois	New York	West Virginia

States Having No Firework Laws (except on county level)

Hawaii
Nevada

Fireworks acts covering the manufacture, storage, and transportation of fireworks in New Jersey are included in appendix E and applicable portions of California Firework Regulations from California Administrative Code Title 19 are included in appendix F (ref 5).

It should be noted that despite the government's attempts to control the sale, use, and transportation of fireworks, injuries continue to happen because illegal use persists. Most serious injuries result from the illegal use of display type Class B fireworks (see appendix A, 49 CFR 173.88 (d)) which are not permitted for consumer use in any state. However, the low cost of manufacture, high profit, and the transport of fireworks across state lines are factors contributing to their availability.

The following is an explanation of Federal Explosives Law and Regulations that come under the Department of the Treasury - Bureau of Alcohol, Tobacco, and Firearms (ATF), whose function is to enforce the regulations under Title XI of the Organized Crime Control Act of 1970 (18 USC, Chapter 40), and Part 181 of Title 27, Code of Federal Regulations (CFR) (appendix B) (ref 4). Chapter 40, added by Title XI of Public Law 91-452, 15 October 1970, is concerned with the importation, manufacture, distribution and storage of explosive materials, and Part 181 of Title 27, CFR, contains the regulations which implement Title XI. Federal regulations categorize fireworks into display fireworks and common fireworks. Display fireworks contain chemical mixtures which are classified as explosive in the Explosives List compiled by the Director ATF (appendix G). Such fireworks fall within the category of low explosives, and are regulated in the same manner as are other low explosives. The DOT which regulates the transportation of explosives by the authority vested in it under the Hazardous Materials Transportation Act (49 USC 1801) and other acts, 181.141(a) (Appendix B) (ref 4) classifies display fireworks as Class B explosives in CFR 173.88(d) (appendix A). Common fireworks, which are classified by the DOT as Class C explosives (appendix A) are exempt from regulation. Common fireworks are generally small, visible-effect fireworks, but also include small firecrackers less than 1/2 inch in length and 1/4 in diameter with a pyrotechnic charge of less than two grains. A list of common fireworks is contained in 49 CFR 173.100(a) (appendix A). All special or display fireworks must be stored in Type 4 storage facilities (27 CFR Part 181, Subpart J - Appendix B) (ref 4). Appendix B (ref 4) contains Federal Laws Relating to Explosives, taken from 18 USC Chapter 40 and Commerce in Explosives Part 181, Title 27, CFR. Special attention is directed towards the following portions of Appendix B (ref 4).

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HAZARDS AND TESTING OF FIREWORKS

The civilian versions of pyrotechnic items (fireworks) are similar to their military counterparts, except for the more rugged construction and protection against adverse environmental conditions that the military items require. Up until the present, the pyrotechnic subdivision of explosives has largely remained an empirical practical discipline with an incomplete theoretical foundation. In explosive technology, it is comparatively easy to perform a characterization study of a high explosive or propellant with regard to their sensitivity to impact, friction, and ignition by thermal or electrical means. This is because individual chemicals or mixtures in which a certain chemical predominates are being dealt with. With the exception of composite propellants, changes in formulas and introduction of new materials are rare so that an extensive background of statistical information can be acquired.

Pyrotechnic compositions, on the other hand, are of infinite varieties, not only by percentage, but also by particle size distribution. New materials are frequently introduced making the hazard potential of these compositions difficult to assess. Mixtures may react slowly and in orderly fashion in small amounts but become explosive in larger quantities. All mixtures are more hazardous in loose, powdered form than when consolidated, and are more likely to become explosive in confinement than when reacting in the open. Generally, the potential hazard diminishes with an increase of particle size of the fuel (charcoal, sulfur, etc.), especially with the absence of subsieve size (< 10 μ diameter) metal particles, with the presence of liquid vehicles and lubricants, and with the exclusion of ingredients of specific sensitivity or sensitizing action such as zirconium and the oxidizers potassium chlorate and perchlorate and lead dioxide. However, every mixture in powdered form in more than gram quantities must be considered able to undergo an unexpected ignition. Common fireworks, of course, are restricted to 50 mg of powder; therefore, unexpected ignitions are not considered a major safety problem.

The civilian pyrotechnic field is a rather limited one that is surrounded by a cloak of commercial confidentiality with regard to formulas, particle size of the ingredients, sequence of compounding, and "tricks of the trade." Many facets of the art are considered to be trade secrets. In most cases, civilian items are made with the least expensive materials in order to be priced competitively. They are also more vulnerable to atmospheric extremes and to physical abuse than are corresponding military items. Certain chemicals that are avoided in military items except when absolutely required, such as potassium chlorate, are used in civilian items. An

undesirable feature of the business is that consumption is always strongly concentrated in short periods of the year in the U.S., such as Independence Day. This situation in itself makes the industry unattractive to large responsible corporations. Therefore, in most cases the manufacturers are usually undercapitalized, small scale operators. In some cases they are made and sold illegally. This situation is further compounded by lenient penalties for violators of the firework laws.

In order to avoid grievous injuries to persons and damage to equipment and buildings, the following essential lines of approach are taken by the responsible manufacturer:

1. Materials known to cause frequent accidents are avoided.

2. The more potentially hazardous and destructive the mixture, the smaller the amount processed in one batch.

3. Sensitivity to accidental impact or friction during mixing is attenuated wherever possible by the presence of a liquid vehicle such as water, or a volatile organic liquid, and in some cases a small amount of thin oil. Attention must be directed to the precaution that water must never be used in the blending of mixtures containing zinc, aluminum, or magnesium, nor should it be used with titanium or zirconium powder unless in the presence of excess water. It must be emphasized, however, that due to the danger of dust explosions when fuels are present in finely divided form, no mixture should be blended when dry.

4. The more dangerous phases of an operation are performed by remotely controlled starting and stopping with adequate barricading.

5. Operating personnel must protect themselves by proper shielding to protect eyes, face, and hands, and wear antistatic clothing. Safety glasses must be worn, as well as rubber or suede gloves.

6. In order to minimize the risk of electrostatic discharge, materials, containers, and personnel must be grounded.

7. Black powder should be handled in a humid atmosphere in order to prevent initiation by a static discharge from the operator.

8. The pyrotechnic mixtures should be stored in electrically conductive rubber containers.

9. Some compositions have toxicological hazards, such as organic dyes and chromic oxides which are suspected of being carcinogenic. Heavy metal ions of barium, mercury, and lead can impair the liver and kidneys.

In addition to the above precautions, it is important that the manufacturer have a thorough knowledge of the reactive properties of the ingredients used in the manufacturing and processing of firework mixtures. The following information is only a highly condensed description of some of the more well known dangerous reactants used in fireworks, and the precautions that should be employed in their use. A more comprehensive treatment of this subject is given in references 1

through 3. Chlorate mixtures are hazardous owing to the ease of their initiation. Under no circumstances should an ammonium salt be blended with a chlorate because in the presence of moisture, ammonium chlorate may form through an exchange reaction. Ammonium chlorate may detonate on standing. In spite of their danger potential, chlorate mixtures are widely used. Barium chlorate is the color donor in green star compositions, potassium chlorate is used in tableau fire (red) compositions, Bengal green illumination compositions, blue and green star compositions, and in waterfall formulas.

Water reactive materials include the alkali metals and their hydrides, alloys, carbides, and amides. Mixtures of ammonium salts, chlorates, and magnesium will ignite when wetted due to the exchange reaction forming the unstable ammonium chlorate. An intimate mixture of sodium hydroxide and ferrosilicon glows with incandescence when moistened, and aluminum powder mixed with iodine will react violently when wetted. A mixture of magnesium powder and silver nitrate will ignite and burn with a blinding flash when water is dropped on it, as will a mixture of aluminum or magnesium with sodium peroxide. Strong oxidizing agents can cause some systems to ignite. Mixtures of sugar and potassium chlorate ignite and can explode when contacted by concentrated sulfuric acid.

Some elements ignite in air when fractured, such as fine zirconium powder (less than 10 μ). Under certain circumstances, finely divided lead, iron, and cobalt can be made to be pyrophoric as well.

From the above discussion, it is obvious that pyrotechnics cannot be regarded as a harmless amusement and hobby for the amateur. The manufacturer must always act under the assumption that the pyrotechnic mixture can spontaneously ignite or explode. The number of fatalities and serious injuries experienced annually in the manufacturing and handling of pyrotechnic devices exceeds those due to any pyrochemical activity. Death and injury are caused usually by burns and lung damage, and to a lesser extent by shock and impact of flying fragments. Probably one of the major causes of accidents is an initial period of caution and anxiety that is followed by an optimistic feeling of relaxation and subsequent carelessness. Therefore, the best preventative is continual vigilance.

Safety rules for fireworks users should include:

1. Make sure that the fireworks are legal. The law requires the words "Class C Fireworks" and the manufacturer's name on every item or package of smaller items.

2. Always read directions.

3. Buy from reliable dealers, not from those engaged in bootlegging.

4. Keep fireworks away from young children.

5. Ignite them outdoors, one at a time in a clear area away from houses, autos, and flammable materials such as grass, gasoline cans, or boxes of other fireworks.

6. Have water handy to douse fireworks if necessary. Wet down the ones that do not go off, and do not try to reignite them.

7. Stay at a safe distance - do not throw fireworks or sparklers into the air or light fireworks in a container.

8. Store fireworks in a cool, dry place.

Federal regulations categorize fireworks according to their hazard potential, but do not specify methods for determining it. The State of California under its Administrative Code 19, Article 7, does offer some information in regard to classification of fireworks. This information can be found in appendix F (ref 5). Further information regarding regulatory, procedural, and administrative information can be obtained by requesting the Alcohol, Tobacco, and Firearms Bulletin. This publication may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402. The national codes and standards of the National Fire Protection Association covering the manufacture, transportation, and storage of fireworks are given in appendix H. Further information concerning the regulations governing the transportation of explosives may be obtained by contacting the Bureau of Explosives, Association of American Railroads, 1920 L Street (N-W), Washington, DC, 20036. Laws pertaining to Class C fireworks (appendix I) such as proper labelling which includes class identification, item identification, performance specifications, instructions, and precautions may be obtained from the U.S. Consumer Product Safety Commission, Office of Communications, Washington, DC 20207.

CONCLUSION

Fireworks present a serious hazard causing many fatalities, painful injuries, and costly property damage every year. Even so called "safe and sane" fireworks, which are thought to provide a reasonable degree of safety (waterfalls, sparklers, Roman candles) have been responsible for deaths and injuries. In the U.S., the fireworks problem is further compounded by the contradictory situation where strict fireworks regulations exist in some states alongside others with complete pyrotechnic freedom. Therefore, state regulations are rendered ineffective as evidenced by the fact that more injuries occur in the 15 states where fireworks are banned than in the 35 states where some "family fireworks" are legal. This problem could be minimized by uniform legislation throughout the 50 states and more active cooperation between federal and local agencies.

RECOMMENDATIONS

Some of the so called "safe and sane" fireworks that have caused deaths and injuries should be banned from the market.

The authority to regulate all aspects of Class C fireworks should be vested in one federal agency. The present system is too cumbersome and complex.

There should be an attempt to attain more uniform legislation pertaining to Class C fireworks, which should cure the ineffectiveness and confusion associated with the present system.

There should be more active cooperation between federal and local agencies.

REFERENCES

1. H. Ellern, "Military and Civilian Pyrotechnics," The Chemical Publishing Company, New York, NY, 1968.

2. A.P. Hardt, "Report on Pyrotechnics," Lockheed Missiles & Space Company, Inc., Palo Alto, CA.

3. J.H. McLain, "Pyrotechnics from the Viewpoint of Solid State Chemistry," The Franklin Institute Press, Philadelphia, PA, 1980.

4. ANON: "ATF: Explosives Law and Regulations," ATF P 5400.7 (7/79), U.S. Government Printing Office, Wahsington, DC, 1980.

5. ANON: "California Fireworks Regulations - California Administrative Code 19," Sacramento, CA, 1976.

BIBLIOGRAPHY

1. R. Lancaster, "Fireworks Principles and Practices," The Chemical Publishing Company, New York, NY, 1972.

2. H. Ellern, "Encyclopedia of Chemical Technology," Vol 16, pp 824-840.

3. ANON: "National Firecodes 1979," Vol 3, National Fire Protection Association, Boston, Mass, 1979.

4 ANON: "Product Safety Fact Sheet No. 12: Fireworks," U.S. Consumer Product Safety Commission, Washington, DC, 1978.

5. S. Kaye, et al, "Encyclopedia of Explosives," vol 9, pp S6-S29.

APPENDIX A

CFR 49 (CLASS B AND CLASS C EXPLOSIVES)

CLASS B EXPLOSIVES; DEFINITIONS

§ 173.88 Definitions of class B explosives. **(a)** Explosives, class B, are defined as those explosives which in general function by rapid combustion rather than detonation and include some explosive devices such as special fireworks, flash powders, some pyrotechnic signal devices and liquid or solid propellant explosives which include some smokeless powders. These explosives are further specifically described in paragraphs (b) to (g) of this section.

(b) Ammunition for cannon with empty projectiles, inert-loaded projectiles, solid projectiles or without projectiles, or shell, and catapult charges exceeding 2 inches in diameter, is fixed ammunition assembled in a unit consisting of the cartridge case containing the propelling charge and primer with empty, inert-loaded, or solid projectiles, or without projectiles, which is fired from a cannon, mortar, gun, howitzer or recoilless rifle.

(c) Rocket ammunition is fixed ammunition which is fired from a tube, launcher, rails, trough, or other device as distinguished from cannon ammunition which is fired from a cannon, gun, or mortar. It consists of an igniter, a rocket motor, and empty projectile, inert-loaded projectile, or solid projectile.

(d) Special fireworks are manufactured articles designed primarily for the purpose of producing visible or audible pyrotechnic effects by combustion or explosion (See § 173.100(r) for common fireworks.) Examples are toy torpedoes, railway torpedoes, some firecrackers and salutes, exhibition display pieces, aeroplane flares, illuminating projectiles, incendiary projectiles, incendiary bombs or incendiary grenades and smoke projectiles or smoke bombs fuzed or unfuzed and containing expelling charges but without bursting charges, flash powders in inner units not exceeding 2 ounces each, flash sheets in interior packages, flash powder or spreader cartridges containing not over 72 grains of flash powder each (see § 173.60 for shipments made as low explosives) and flash cartridges consisting of a paper cartridge shell, small-arms primer, and flash composition, not exceeding 180 grains all assembled in one piece. Fireworks must be in a finished state, exclusive of mere ornamentation, as supplied to the retail trade and must be so constructed and packed that loose pyrotechnic composition will not be present in packages in transportation.

(e) Jet thrust units (jato), class B explosives, rocket motors, class B explosives; igniters, jet thrust (jato), class B explosives; and igniters, rocket motors, class B explosives.

(1) Jet thrust units (jato), class B explosives, are metal cylinders containing a mixture of chemicals capable of burning rapidly and producing considerable pressure. Jet thrust units are designed to be ignited by an electric igniter. They are used to assist aeroplanes to take off.

(2) Rocket motor, class B explosives, is a device containing a propelling charge and consisting of one or more continuous type combustion unit(s), closed at one end (closure may be an igniter with a thrust plate) and with a nozzle(s) at the other end. The propelling charge consists of a mixture of chemicals and/or chemical compounds which when ignited is capable of burning rapidly and producing considerable pressure and which will not sustain a detonation. (The rocket motor carries its own solid oxidizer-fuel combination.) Rocket motors, class B explosives, should be nonpropulsive in shipment (see subdivisions (i) and (ii) of this subparagraph). Rocket motors, class B explosives, are designed to be ignited by an electrically actuated device which may be an igniter, or by other means. They are used to propel and/or provide thrust for guided missiles, rockets, or spacecraft.

(i) A rocket motor to be considered "nonpropulsive" must be capable of unrestrained burning and will not move appreciably in any direction when ignited by any means. Blast deflectors, thrust neutralizers or other similar devices must be proven by test prior to authorization for use.

(ii) Rocket motors, class B explosives, may be shipped in a propulsive state only under conditions approved by the Department of Defense or the National Aeronautics and Space Administration.

(3) Igniters, jet thrust (jato), class B explosives, and igniters, rocket motor, class B explosives, are devices consisting of an electrically operated or remotely controlled ignition element and a fast burning composition which functions by rapid burning rather than detonation, assembled in a unit for use in igniting the propelling charge of jet thrust units, rocket motors, or rocket engines.

(f) Propellant explosives, class B. Propellant explosives, class B, are solid or liquid chemicals or chemical mixtures which function by combustion. The combustion is controlled by composition, size, form of grain, or other chemical or mechanical means. Any propellant is class B which fails to detonate in five trails when tested (see Note 2) in the package in which it is offered for shipment. Propellant explosives, class B, include smokeless powder for small arms (see Note 4), smokeless powder for cannon, liquid monopropellant fuel (see Note 3), smokeless powder, or solid propellant explosives for rockets, jet thrust units, or other devices. Black powder is not included in this classification and is defined specifically in § 173.53.

(g) Explosive power devices, class B, are devices designed to operate ejecting apparatus or other mechanisms by means of a propellant explosive, class B, and differ from explosive power devices, class C, in that they contain larger or more powerful propellants. The devices must not rupture on functioning and must be of a type approved by the Bureau of Explosives, except as otherwise provided in §§ 173.51(q) and 173.86(a).

Note 1 Fire-extinguisher charges containing not to exceed 50 grains of propellant explosives per unit are exempt from the regulations in Parts 170-189 of this chapter.

Note 2 In conducting the test, one propellant container shall be surrounded by inert loaded containers of the same weight, including one inert container placed on top of the propellant container. The propellant shall be ignited by means of a commercial electric squib placed within 4 inches of the bottom of the container. The presence of a crater and absence of flame shall be considered as evidences of detonation.

Note 3 A liquid monopropellant fuel is defined as any propellant in which the fuel and the oxidizer are physically or chemically combined in one form.

Note 4 Smokeless powder for small arms in quantities not exceeding 100 pounds net weight in one car or motor vehicle, except shipments by, for, or to the Department of the Army, Navy, or Air Force of the United States Government, shall be classed as a flammable solid for purposes of transportation when packaged in accordance with § 173.197a.

(h) Starter cartridges, jet engine, class B explosives consist of plastic and/or rubber cases, each containing a pressed cylindrical block of propellant explosive and having in the top of the case a small compartment that incloses an electrical squib, small amounts of black powder, and smokeless powder, which constitutes an igniter. The starter cartridge is used to activate a mechanical starter for jet engines.

(i) Rocket engine (liquid), class B explosives is a complete, self-contained rocket propulsion unit which contains an oxidizer and a fuel, each separated by an aluminum or stainless steel wall of not less than 0.250 inch thickness. Double walls are permitted. Pressurization of the propellant tanks is by use of a gas generator. The ignition source must be in an unarmed position for shipment. Rocket engines (liquid) are used to propel or provide thrust for rockets, missiles or spacecraft.

§ 173.89 Ammunition for cannon with empty projectiles, inert-loaded projectiles, solid projectiles, tear gas projectiles, or without projectiles. **(a)** Ammunition for cannon with empty projectiles, inert-loaded projectiles solid projectiles, tear gas projectiles, or without projectiles must be well packed and properly secured in strong wooden or metal containers, or in plastic containers of approved military specifications complying with § 173.7(a).

(b) Each outside package must be plainly marked **"AMMUNITION FOR CANNON WITH EMPTY PROJECTILES", "AMMUNITION FOR CANNON WITH INERT-LOADED PROJECTILES", "AMMUNITION FOR CANNON WITH SOLID PROJECTILES", "AMMUNITION FOR CANNON WITHOUT PROJECTILES",** or **"AMMUNITION FOR CANNON WITH TEAR GAS PROJECTILES, CLASS B EXPLOSIVES,"** as appropriate.

§ 173.90 Rocket ammunition with empty, inert-loaded, or solid projectiles. (a) Rocket ammunition with empty, inert-loaded, or solid projectiles must be well packed and properly secured in strong wooden or metal containers.

(b) Each package must be plainly marked **"ROCKET AMMUNITION WITH EMPTY PROJECTILES," "ROCKET AMMUNITION WITH INSET-LOADED PROJECTILES,"** OR **"ROCKET AMMUNITION WITH SOLID PROJECTILES,"** as appropriate.

§ 173.91 Special fireworks. (a) Special fireworks, except as otherwise authorized, must be securely packed in containers complying with the following specifications:

(1) [Reserved]

(2) Spec. 15A, 15B, 16A, or 19A (§§178.168, 178.169, 178.185, or 178.190 of this subchapter) Wooden boxes. Gross weight not to exceed 500 pounds.

(3) Spec. 12B (§178.205 of this subchapter). Fiberboard boxes. Gross weight not to exceed 65 pounds except as provided in subparagraph (5) of this paragraph. Not permitted for illuminating projectiles and aeroplanes flares.

(4) Fireworks that can be exploded enmasse, by dropping the completed shipping container from a height of six feet or by the impact of a rifle bullet, if found safe for transportation, may be shipped in accordance with the regulations in this part applying to high explosives.

(5) Ship distress signals when packed in tight inside metal containers of not less than 24 gauge sheet iron or other metal of equal strength, securely closed by positive means (not friction) and of such design and so arranged as to completely fill the outside container, may be packed in spec. 12B (§178.205 of this subchapter) fiberboard boxes. Gross weight not to exceed 95 pounds when boxes are made in accordance with §178.205-29 of this subchapter.

(6) Illuminating projectiles, incendiary projectiles, and smoke projectiles exceeding 90 pounds in weight each, or of not less than 4½ inches in diameter, may be shipped without being boxed only by, for, or to the Departments of the Army, Navy, and Air Force of the U.S. Government when securely blocked and braced in accordance with methods prescribed by the cognizant military Departments and approved by the Department.

(i) Illuminating projectiles, incendiary projectiles, and smoke projectiles less than 4½ inches in diameter may be shipped without being boxed, when palletized, only by, for, or to the Departments of the Army, Navy, and Air Force of the U.S. Government when securely blocked and braced in accordance with methods prescribed by the cognizant military departments and approved by the Department.

(b) Flash or spreader cartridges not exceeding 72 grains of flash powders each must be packed in containers complying with the following specifications:

(1) Spec. 15A, 15B, 16A, or 19A (§§178.168, 178.169, 178.185, or 178.190 of this subchapter) Wooden boxes or spec. 12B (§178.205 of this subchapter) fiberboard boxes, with inside containers which must be cartons or tin cans containing not over 6 cartridges and not to exceed 150 cartons or cans to an outer box.

(c) Flash cartridges consisting of a paper cartridge shell, small arms primer, and flash composition, not exceeding 180 grains each, all assembled in one piece ready for firing must be packed in containers complying with the following specifications.

(1) Spec. 15A, 15B, 16A, or 19A (§§178.168, 178.169, 178.185, or 178.190 of this subchapter). Wooden boxes, or spec. 12B (§178.205 of this subchapter) fiberboard boxes, with inside containers which must be cartons containing not to exceed 12 cartridges each and not more than 12 such cartons in one outside box.

(2) Flash cartridges, in quantity not exceeding 5 pounds, when in small interior wooden boxes, may be packed with nonexplosive, nonflammable or noncorrosive articles.

(d) Flash sheets must be packed in containers complying with the following specifications:

(1) Spec. 15A, 15B, 16A, or 19A (§§178.168, 178.169, 178.185, or 178.190 of this subchapter). Wooden boxes, or spec. 12B (§178.205 of this subchapter) fiberboard boxes, with inside containers which must be an inner package or envelope containing not more than 6 flash sheets and not more than one dozen inner envelopes or packages inclosed in each inner pasteboard box or carton. Gross weight of wooden box not to exceed 150 pounds. Gross weight of fiberboard box not to exceed 65 pounds.

(2) Flash sheets, in quantity not exceeding 5 pounds, when in small interior wooden boxes, may be packed with nonexplosive, nonflammable, or noncorrosive articles.

(e) Photographic flash powder must be packed in containers complying with the following specifications:

(1) Spec. 15A, 15B, 16A, or 19A (§§178.168, 178.169, 178.185, or 178.190 of this subchapter) Wooden boxes, or spec. 12B (§178.205 of this subchapter) fiberboard boxes, with inside containers which must be any inside container sufficiently strong to retain contents not exceeding 2 ounces each. If bottles are used, each bottle must be packed in a securely closed fiber mailing tube having metal ends. Not more than 4 dozen 2-ounce bottles may be packed in an outer wooden box. When packed in units not exceeding 1 ounce each without bottles in similar fiber mailing tubes and outer wooden boxes, the gross weight of one outside box must not exceed 150 pounds. Gross weight of fiberboard box not to exceed 65 pounds.

(2) Photographic flash powder, in quantity not exceeding 5 pounds, when in small interior wooden boxes may be packed with nonexplosive, nonflammable, or noncorrosive articles.

(f) Railway torpedoes (track torpedoes) must be packed in containers complying with the following specifications:

(1) Spec. 15A, 15B, 16A, 19A, or 19B (§§178.168, 178.169, 178.185, 178.190 or 178.191 of this subchapter). Wooden boxes. Net weight not to exceed 125 pounds.

(2) Spec. 12H, 23F, or 23H (§178.209, §178.214, or §178.219 of this subchapter). Fiberboard boxes. Gross weight not to exceed 65 pounds.

(3) Spec. 12B (§178.205 of this subchapter). Fiberboard boxes, with inside containers which must be cartons containing not to exceed one-half gross track torpedoes each. Gross weight of outside fiberboard box not to exceed 65 pounds.

(4) Spec. 12B (§178.205 of this subchapter). Fiberboard boxes without inside containers may be used for not more than 50 track torpedoes provided the smallest dimension of the box is not less than 6 inches.

(g) Toy torpedoes must be securely packed as prescribed in this section in containers complying with the following specifications:

(1) Spec. 15A, 15B, 16A, or 19A (§§178.168, 178.169, 178.185, or §178.190 of this subchapter) wooden boxes, or spec. 12B (§178.205 of this subchapter) fiberboard boxes which must be constructed to comply with §178.205-30 of this subchapter. Not more than 20 one-quarter gross cartons totalling not more than 5 gross of toy torpedoes are authorized per fiberboard box. Gross weight of fiberboard box must not exceed 35 pounds. Gross weight of wooden box must not exceed 65 pounds.

(2) Toy torpedoes of any kind must not be packed with other fireworks.

(3) Toy torpedoes containing a cap must be packed in sawdust, in inside paper or cardboard cartons. The size of the carton must not be less than 4 cubic inches for each grain of explosive.

(4) Toy torpedoes containing a mixture of potassium chlorate, black antimony and sulfur, must be packed in an inner container, containing not more than one-fourth gross. The capacity of this inner container must be not less than 105 cubic inches, and it must be divided into 12 equal compartments. All vacant space inside the container must then be filled with sawdust or fine shavings.

(5) The gross weight of a container of toy torpedoes must not exceed 65 pounds.

(h) Except as otherwise specified in this section the gross weight of one outside container of special fireworks must not exceed 500 pounds.

(l) **Marketing.** Each outside container of special fireworks must be plainly marked in letters not less than 7/16 inch in height **"SPECIAL FIREWORKS—HANDLE CAREFULLY—KEEP FIRE AWAY"**, except that each outside container of railway torpedoes must be plainly marked in letters not less than 7/16 inch in height **"RAILWAY TORPEDOES—HANDLE CAREFULLY—KEEP FIRE AWAY."**

(1) Outside containers of toy torpedoes must in addition be marked **"TOY TORPEDOES".**

§ 173.92 Jet thrust units (jato), CLASS B explosives; rocket motors, CLASS B explosives; igniters, jet thrust (jato), CLASS B explosives; igniters, rocket motors, CLASS B explosives; and starter cartridges, jet engine, CLASS B explosives. (a) Class B explosives covered by this section must be packaged in outside packagings complying with the following specifications:

(1) Specification 14, 15A, 15E, or 16A (§§178.165, 178.168, 178.172, 178.185 of this subchapter) wooden boxes, or wooden boxes, fiberboard lined.

(2) Specification 15B (§178.169 of this subchapter) wooden boxes. Authorized only for igniters, jet thrust, class B explosives, or igniters, rocket motors, class B explosives.

(3) Specification 23F (§178.214 of this subchapter) fiberboard boxes. Authorized only for igniters, jet thrust, class B explosives; igniters, rocket motor, class B explosives; or starter cartridges, jet engine, class B explosives. Items must be packaged in tightly closed inside fiberboard boxes (at least 200-pound test (Mullen or Cady)) or metal containers. Starter cartridges, jet engine, must have igniter wires short-circuited when packed for shipment.

(4) Wooden boxes, wooden crates, or other packagings of approved military specification which comply with §173.7(a), or other packagings approved by the Bureau of Explosives.

(b) Jet thrust units, class B explosives, or rocket motors, class B explosives, must not be shipped with igniters assembled therein unless shipped by, for, or to the Department of Defense or the National Aeronautics and Space Administration.

(c) Jet thrust units, class B explosives, or rocket motors, class B explosives, may be packaged in the same outside packaging with their separately packaged igniters (or igniter components), class A, B, or C explosives, only in packagings approved by the Bureau of Explosives or of approved military specifications complying with §173.7(a).

(d) Each package must be plainly marked **"JET THRUST UNITS, CLASS B EXPLOSIVES", "ROCKET MOTORS, CLASS B EXPLOSIVES", "IGNITERS, JET THRUST, CLASS B EXPLOSIVES", "IGNITERS, ROCKET MOTORS, CLASS B EXPLOSIVES,"** or **"STARTER CARTRIDGES, JET ENGINE, CLASS B EXPLOSIVES"** as appropriate.

§ 173.93 Propellant explosives (solid) for cannon, small arms, rockets, guided missiles, or other devices, and propellant explosives (liquid). (a) Propellant explosives (solid) for cannon, small arms, rockets, guided missiles, or other devices, and propellant explosives (liquid) when offered for transportation by carriers by rail freight, highway, or water, must be packed in containers complying with the following specifications (see paragraph (g)(1) of this section for shipments by cargo-only aircraft):

(1) Specification 12H, 23G, or 23H (§178.209, 178.218, 178.219 of this subchapter) fiberboard boxes with inside securely closed polyethylene bags having a minimum wall thickness of 0.006-inch.

(2) Spec. 13 (§178.140 of this subchapter). Metal kegs at least 8 inches long. Gross weight not to exceed 150 pounds.

(3) Bundles of metal kegs, spec. 13 (§178.140 of this subchapter), firmly tied together with rope and wrapped in strong burlap, canvas, or similar material, securely sewed and roped, are authorized. Net weight of propellant explosives must not exceed 100 pounds.

(4) Tight metal cases in tight wooden boxes free from loose knots and cracks or tight metal containers. Gross weight not to exceed 200 pounds.

(5) Spec. 14 or 15A (§§178.165 or 178.168 of this subchapter). Wooden boxes, metal-lined, spec. 2F (§178.25 of this subchapter). Gross weight not to exceed 200 pounds.

(6) Spec. 14 or 15A (§178.165 or §178.168 of this subchapter) wooden boxes or spec. 23F or 23H (§178.214 or §178.219 of this subchapter) fiberboard boxes, with inside containers which must be cloth or paper bags, of capacity not exceeding 25 pounds, net weight, each capable of withstanding, when filled to shipping content, at least two drops on end from a height of 4 feet, without breakage or sifting of contents. Outside container not to exceed more than 50 pounds, net weight.

(7) Spec. 14, 15A, 15B, or 15C (§§178.165, 178.168, 178.169, or §178.170 of this subchapter) wooden boxes, or spec. 12B, 23F, or 23H (§§178.205, 178.214 or §178.219 of this subchapter) fiberboard boxes, with inside containers which must be spec. 13 metal kegs. Spec. 12B (§178.205 of this subchapter) fiberboard boxes shall contain not more than 6 metal kegs not over 5 pounds net weight each in one outside box. Gross weight not to exceed 200 pounds in wooden boxes or 65 pounds in fiberboard boxes.

(8) Spec. 14, 15A, 15B, or 15C (§§178.165, 178.168, 178.169, or 178.170 of this subchapter) wooden boxes, or spec. 12H, 23F, or 23H (§§178.209, 178.214, or 178.219 of this subchapter) fiberboard boxes, with inside containers which must be fiber or metal containers of not more than 1½ pounds capacity each. Gross weight not to exceed 200 pounds in wooden boxes or 65 pounds in fiberboard boxes.

(9) Spec. 14, 15A, 15B, or 15C (§§178.165, 178.168 or 178.170 of this subchapter) wooden boxes, or spec. 23F or 23H (§§178.214 or 178.219 of this subchapter) fiberboard boxes, with inside containers which must be not to exceed four metal containers, spec. 2A (§178.20 of this subchapter), of not more than 25 pounds each. Gross weight in fiberboard boxes not to exceed 65 pounds.

(10) Specification 21C (§178.224 of this subchapter). Fiber drum. Each drum having any wooden head must be provided with a strong, sift-proof liner. Net weight may not exceed 225 pounds. Shipment by rail freight is prohibited except in trailer-on-flat-car service.

(11) Spec. 14, 15A, or 16A (§§178.165, 178.168, or 178.185 of this subchapter). Wooden boxes, not lined, authorized only for grains not less than 1-inch in diameter or 3 inches in length, provided such grains are tightly packed and are coated with a protective material. Gross weight not to exceed 200 pounds.

(12) (deleted)

(b) Propellant explosives (smokeless powder for cannon or small-arms) in water when offered for transportation by carriers by rail freight, highway, or water must be packed in containers complying with the following specifications:

(1) Spec. 5, 5A, 5B, 6A, 6B, or 6C (§§178.80, 178.81, 178.82, 178.97, 178.98, or 178.99 of this subchapter). Metal barrels or drums.

(2) [Reserved]

(3) Spec. 15A (§178.168 of this subchaper). Wooden boxes metal-lined, spec 2F (§178.25 of this subchapter).

(c) Igniters composed of black powder may be included in shipments of propellant explosives.

(d) Propellant explosives (unstable, condemned, or deteriorated smokeless powder for cannon or small arms) must be packed submerged in water in containers complying with the following specifications:

(1) Spec. 5, 5A, 5B, 6A, 6B, or 6C (§§178.80, 178.81, 178.82, 178.97, 178.98, or 178.99 of this subchapter). Metal barrels or drums.

(2) [Reserved]

(3) Spec. 15A (§178.168 of this subchapter). Wooden boxes, metal-lined, spec 2F (§178.25 of this subchapter).

[2](4) Spec. 103, 103-W or 111A100-W-1 (§§179.200, 179.201 of this subchapter). Tank cars.

(5) Propellant explosives (unstable, condemned, or deteriorated smokeless powder for cannon or small arms) may not be offered for transportation by cargo-only aircraft.

(e) Propellant explosives (liquid), when offered for transportation by rail freight, highway, or water, must be packed in containers complying with the following specifications (see §173.93(g) for shipments by rail express).

(1) Spec. 15A, 15B, or 15E (§§178.168, 178.169, or 178.172 of this subchapter). Wooden box or wooden box fiberboard lined, with inside polyethylene bottles having taped screw-cap closures, not over 1 gallon capacity each. Each bottle must be entirely contained within a polyethylene or other suitable plastic bag formed of material not less than 0.004 inch thickness, with ends securely closed. Each bottle in the plastic bag shall be enclosed in a tight metal container and be surrounded on all sides with at least 2 inches of incombustible cushioning material; cans in the outside box must likewise be cushioned from each other and sides, top, and bottom of the container.

(2) Spec. 5B, 6A, 6B, 6C, 6D, also 17C or 17H (single-trip containers) (§§ 178.82, 178.97, 178.98, 178.99, 178.102, 178.115, or 178.118 of this subchapter). Metal barrel, drum, or cylindrical steel overpack, with inside spec. 2S (§ 178.35 of this subchapter) polyethylene container, packed inside a strong, tight metal drum securely closed, or with inside glass-lined aluminum carboy not over 12 gallons capacity. Inside steel drum or glass-lined aluminum carboy must be surrounded on all sides with at least 2 inches of incombustible absorbent cushioning material uniformly distributed. Polyethylene containers are authorized only for liquids that will not react dangerously with the plastic or result in container failure.

(3) Outage requirements. Containers must not be entirely filled. Sufficient interior space must be left vacant to prevent leakage or distortion of containers due to the expansion of the contents from increase of temperature during transit.

(4) (deleted)

(f) Each outside container must be plainly marked **"PROPELLANT EXPLOSIVES (LIQUID), CLASS B,"** **"PROPELLANT EXPLOSIVES (SOLID), CLASS B,"** or **"PROPELLANT EXPLOSIVES (SOLID), CLASS B, IN WATER,"** as the case may be. There may be added such additional marketing as "Smokeless Powder for Cannon" or "Smokeless Powder for Small Arms," as the case may be.

(g) Propellant explosives, except as provided in paragraph (d)(5) of this section, when offered for transportation by cargo-only aircraft must be packaged as follows (also authorized for transportation by carriers by rail freight, highway, or water):

(1) Solids in tightly closed metal cans or fiber containers, not exceeding 1 pound each, or in inside metal cans or fiber containers containing not more than one grain of propellant, not exceeding 5 pounds each, and liquids in polyethylene bottles compatible with contained liquid, with screw-cap closures taped, not exceeding 1 pound or 16 fluid ounces capacity each, packed in outside wooden box, spec. 15A, 15B, or 15C (§§ 178.168, 178.169, or 178.170 of this subchapter); or outside fiberboard box spec. 12B, 23F, or 23H (§§ 178.205, 178.214, or 178.219 of this subchapter). Not more than 1,000 small-arms primers packed in inside containers as prescribed by § 173.107 may be included in one outside shipping container with solid propellant explosives. Inside containers must be packed so as to prevent movement within the outside container. Not more than 10 pounds of propellant explosives may be shipped in one outside container. Each outside container must be plainly marked **"PROPELLANT EXPLOSIVES (LIQUID), CLASS B,"** or **"PROPELLANT EXPLOSIVES (SOLID), CLASS B,"** or **"PROPELLANT EXPLOSIVES, CLASS B,** and **SMALL-ARMS PRIMERS,"** as the case may be.

§ 173.94 Explosive power devices, Class B. (a) Explosive power devices, class B, must not be shipped with igniters assembled therein unless shipped by, for, or to the Departments of the Army, Navy, and Air Force of the United States Government or unless of a type approved by the Bureau of Explosives. Explosive power devices, class B, must be packed in outside containers complying with the following specifications:

(1) Spec. 14, 15A, 15E, or 16A (§§ 178.165, 178.168, 178.172, or 178.185 of this subchapter). Wooden boxes or wooden boxes, fiberboard lined.

(2) Strong wooden or metal boxes or containers. Authorized only for shipments made by, for, or to the Department of the Army, Navy, or Air Force of the United States Government.

(b) Explosive power devices, class B, packed in any other manner must be in containers of a type approved by the Bureau of Explosives.

(c) Each outside container must be plainly marked **"EXPLOSIVE POWER DEVICES, CLASS B"** and **"HANDLE CAREFULLY—KEEP FIRE AWAY."**

§ 173.95 Rocket engines (liquid), Class B explosives. (a) Rocket engines (liquid), Class B explosives must be packaged as follows:

(1) Specification 14, 15A, 15E, or 16A (§§ 178.165, 178.168, 178.172, 178.185 of this subchapter) wooden boxes, or wooden boxes, fiberboard lined.

(2) Wooden boxes or metal packagings of approved military specification which comply with § 173.7(a), or other packagings approved by the Bureau of Explosives.

(b) Rocket engines (liquid), class B explosives, must not be shipped with igniters or initiators assembled therein unless shipped by, for, or to the Department of the Army, the Department of the Navy, or the Department of the Air Force, and only when authorized by the Department of Defense or by the Bureau of Explosives.

(c) Rocket engines (liquid), class B explosives, may be packed in the same outside packaging with separately packaged igniters, jet thrust, class B explosives when authorized by the Department of Defense or when packagings are approved by the Bureau of Explosives.

(d) Each package must be plainly marked **"ROCKET ENGINES (LIQUID), CLASS B EXPLOSIVES."**

CLASS C EXPLOSIVES; DEFINTIONS

§ 173.100 Definitions of Class C explosives. (a) Explosives, class C, are defined as certain types of manufactured articles which contain class A, or class B explosives, or both, as components but in restricted quantities, and certain types of fireworks. These explosives are further specifically described in this section.

(b) Small arms ammunition is fixed ammunition consisting of a metallic, plastic composition, or paper cartridge case, a primer, and a propelling charge, with or without bullet, projectile, shot, tear gas material, tracer components, or incediary compositions, or mixtures, and is further limited to the following:

(1) Ammunition designed to be fired from a pistol, revolver, rifle, or shotgun held by the hand or to the shoulder.

(2) Ammunition of caliber less than 20 millimeters with incendiary solid, inert or empty projectiles (with or without tracers), designed to be fired from machine guns or cannons.

(3) Blank cartridges including canopy remover cartridges, starter cartridges, and seat ejector cartridges, containing not more than 500 grains of propellant powder, provided that such cartridges shall be incapable of functioning en masse as a result of the functioning of any single cartridge in the container or as a result of exposure to external flame.

(4) Twenty millimeter ammunition other than specified in § 173.53(q).

(c) Explosive cable cutters are used for cutting cables, etc. They consist of a metal device containing a knife-edged component which is propelled by a small charge of an explosive compound.

(d) Cordeau detonant fuse is a fuse containing a core of pentaerythrite tetranitrate or cyclotrimethylene-trinitramine not exceeding 400 grains per linear foot, overspun with tapes, yarns and plastics or waterproofing compounds. Wire countering is permissible.

(e) Percussion fuzes, combination fuzes, and time fuzes are devices designed to ignite powder charges of ammunition or to initiate an intermediate charge (booster) in projectiles, bombs, etc. When such fuzes are assembled with booster charges they are properly described as "detonating fuzes" (see § 173.53(g)(2)).

(f) Tracer fuzes and tracers are devices which are attached to projectiles and contain a slow-burning composition to show the flight of projectiles at night.

(g) Cartridge bags, empty, with black powder igniters consist of empty bags having attached thereto an igniter composed of black powder. (See § 173.93(b), (c), and (d) when shipped with propellant explosives.)

(h) Igniters consist of fiberboard, plastic, paper or metal tubes containing a small quantity of igniting compound which is ignited by the action of a primer, pull wire or scratch composition.

(i) Delay electric igniters consist of small metal, fiberboard, or pasteboard tubes containing a wire bridge in contact with a small quantity of ignition compound. The ignition compound is in contact with or in close proximity to a short piece of safety fuse.

(j) Electric squibs consist of small tubes or blocks containing a small quantity of ignition compound in contact with a wire bridge.

(k) Fuse lighters and fuse igniters are small cylindrical hollow pasteboard or metal tubes containing an igniting composition in one end, the other end being open to permit it to be placed on safety fuse.

(l) Safety squibs are small paper tubes containing a small quantity of black powder. One end of each tube is usually twisted and tipped with sulfur.

(m) Instantaneous fuse is cotton yarn impregnated with meal powder. No restrictions other than packing in strong wooden boxes or barrels plainly marked **"INSTANTANEOUS FUSE"** are prescribed in this part.

(n) Primers are devices used to ignite the powder charges of ammunition or the black powder bursting charges of projectiles. For small-arms ammunition the primers are "small-arm primers" or "percussion caps".

(o) Safety fuse, consisting of a core of black powder overspun with yarns, waterproofing compounds, and/or tapes must be packed in outside fiberboard boxes, wooden boxes, wooden barrels, bales, or metal containers, and must be described for shipping purposes as **"SAFETY FUSE"**. No other restrictions apply in this part.

(p) Toy plastic or paper caps for toy pistols, in sheets, strips, rolls, or individual caps, must not contain more than an average of twenty-five hundredths of a grain of explosive composition per cap and must be packed in inside packages constructed of cardboard not less than 0.013 inch in thickness, metal not less than 0.008 inch in thickness, or noncombustible plastic not less than 0.015 inch in thickness, or a composite blister package consisting of cardboard not less than 0.013 inch in thickness and noncombustible plastic not less than 0.006 inch in thickness, which shall provide a complete enclosure and the minimum dimensions of each side or end of such package shall be not less than ⅛ inch in height. Unless greater weight of composition is approved by the Bureau of Explosives, the number of caps in these inside packages shall be limited so that not more than 10 grains of explosive composition shall be packed into one cubic inch of space and not exceeding 17.5 grains of the explosive composition of toy caps shall be packed in any inside container. These inner containers must be packed in outside containers as specified in § 173.109.

(q) Explosive rivets, each containing not more than 375 milligrams of explosive composition, are exempt from specification packaging and labeling requirements when packed in pasteboard or other inside boxes in securely closed strong wooden boxes, fiberboard boxes or metal containers. Each outside container must be marked **"EXPLOSIVE RIVETS"**. No other restrictions apply in this part.

(r) Common fireworks are fireworks devices suitable for use by the public and designed primarily to produce visible effects by combustion. Some small devices designed to produce audible effects are also included in this class. The types, sizes and amount of pyrotechnic contents of these devices are limited as enumerated in this paragraph. No component, of any device listed in this paragraph, which produces or is intended to produce an audible effect shall contain pyrotechnic composition in excess of 2 grains in weight; nor shall such device or component, upon functioning, project or disperse any metal, glass or brittle plastic fragments. (Propelling or expelling charges consisting of a mixture of sulfur, charcoal, and saltpeter are not considered as designed to produce audible effects.) Any new device, not enumerated in this paragraph, must be approved by the Bureau of Explosives before being offered for transportation as Common Fireworks. Common fireworks must be in a finished state exclusive of mere ornamentation as supplied to the retail trade and must be so constructed and packed that loose pyrotechnic composition will not be present in packages in transportation. Fireworks, except articles defined in paragraphs (s) through (y) inclusive, of this section, other than common fireworks as defined in this paragraph, and those forbidden for transportation in § 173.51, are classed as Special Fireworks (see § 173.88(d)).

(1) Roman candles, not exceeding ten balls spaced uniformly in the tube, total pyrotechnic composition not to exceed twenty grams each in weight. The inside tube diameter shall not exceed ⅜ inch.

(2) Sky rockets with sticks, total pyrotechnic composition not to exceed twenty grams each in weight. The inside tube diameter shall not exceed ½ inch. The rocket sticks must be securely fastened to the tubes.

(3) Helicopter type rockets, total pyrotechnic composition not to exceed twenty grams each in weight. The inside tube diameter shall not exceed ½ inch.

(4) Cylindrical fountains, total pyrotechnic composition not to exceed seventy-five grams each in weight. The inside tube diameter shall not exceed ¾ inch.

(5) Cone fountains total pyrotechnic composition not to exceed fifty grams each in weight.

(6) Wheels, total pyrotechnic composition not to exceed sixty grams for each driver unit or two hundred and forty grams for each complete wheel. The inside tube diameter of driver units shall not exceed ½ inch.

(7) Illuminating torches and colored fire in any form, total pyrotechnic composition not to exceed one hundred grams each in weight.

(8) Dipped sticks, the pyrotechnic composition of which contains any chlorate or perchlorate shall not exceed 5 grams. Sparklers, the composition of which does not exceed 100 grams each and which contain no magnesium or magnesium and a chlorate or perchlorate, are not subject to the regulations in Parts 170-189 and 397 of this title.

(9) Mines and shells of which the mortar is an integral part, total pyrotechnic composition not to exceed forty grams each in weight.

(10) Firecrackers and salutes with casings, the external dimensions of which do not exceed one and one-half inches in length or one-quarter inch in diameter, total pyrotechnic composition not to exceed two grains each in weight.

(11) Novelties consisting of two or more devices enumerated in this paragraph when approved by the Bureau of Explosives.

(s) Igniter cord consists of textile yarns and/or a wire uniformly covered with a combustible chemical mixture, with or without additional textile or wire counterings, waterproofing or finishing coatings which when ignited, burns externally at various rates according to design. Igniter cord must be packed in strong, tight, outside fiberboard boxes or drums, wooden boxes or metal containers plainly marked **"IGNITER CORD."**

(t) Explosive auto alarms are tubular devices containing a small amount of explosive composition and igniting compound which is ignited by an electric spark. These devices must be so designed that they will neither burst nor cause external flame on functioning.

(u) Toy propellant devices and toy smoke devices consist of small paper or composition tubes or containers containing a small charge of slow burning propellant powder or smoke producing powder. These devices must be so designed that they will neither burst nor produce external flame on functioning and ignition elements, if attached, must be of a design approved by the Bureau of Explosives.

(v) Oil well cartridges are tubular devices each containing not more than 350 grains of propellant powder and having no ignition device or element. Cartridges must be constructed and packed so that they will be incapable of functioning en masse as a result of exposure to external flame.

(w) Actuating cartridges, explosive, fire extinguisher or valve consist of a small metal or fiber housing containing a small amount of initiating explosive and a propellant and are used to actuate valves on remotely controlled fire extinguishers or other apparatus.

(x) Cigarette loads, trick matches, and trick noise makers, explosive, must be of a type approved by the Bureau of Explosives and are described as follows:

(1) Cigarette loads consist of wooden pegs to which are affixed a small amount of explosive composition.

(2) Trick matches consist of book matches, strike anywhere matches, or strike-on-box matches which have small amounts of explosive or pyrotechnic composition affixed to the match stem just below the match head.

(3) Trick noise makers, explosive, consist of spheres containing a small amount of explosive composition.

(y) Smoke candles, smokepots, smoke grenades, smoke signals, signal flares, hand signal devices, and Very signal cartridges are devices designed to produce visible effects for signal purposes. These devices must contain no bursting charges and no more than 200 grams of pyrotechnic composition each (see note 1), exclusive of smoke composition (see note 2), unless greater weight of composition is approved by the Bureau of Explosives.

Note 1 Pyrotechnic compositions (other than smoke compositions) are defined as chemical mixtures which on burning and without explosion, produce visible or brilliant displays or bright lights.

Note 2 Pyrotechnic smoke compositions are defined as chemical smoke producing mixtures, which on ignition burn at a controlled rate, without the production of flame and without the build-up of internal pressure that would rupture or burst the end product.

(z) Explosive release devices consist of a rod or link fitted with means for mechanical attachment to other apparatus or equipment and containing a small electrically initiated explosive charge which will break the rod or link upon functioning. These devices must be so designed that they will not function other explosive devices in the package sympathetically.

(aa) Explosive power devices, class C, are devices designed to drive generators or mechanical apparatus by means of propellant explosives, class B. The devices consist of a housing with a contained propellant charge and an electric igniter or squib. The devices must be of a type approved by the Bureau of Explosives for this classification.

(bb) Detonating fuzes, class C explosives, are used in the military service to detonate high explosive bursting charges of projectiles, mines, bombs, torpedos, grenades, demolition charges, and safety and arming devices. They contain a detonator and a quantity of high explosives. Additionally they may be used by the military or commercial users to transmit a detonation between two or more devices. This type detonating fuze contains either an explosive train consisting of mild detonating fuse, metal clad, igniter fuse-metal clad or similar type fuses, and any combination of one or more boosters detonators and high explosives in a total quantity not exceeding 25 grams of explosive composition. All detonating fuzes, class C explosives, must be made and packed so that they will not cause functioning of other fuzes, explosives, or other explosive devices if one of the fuzes detonates in a shipping container or in adjacent containers.

(cc) Mild detonating fuses, metal clad and flexible linear shaped charges, metal clad consists of a core containing not more than 2½ grains of high explosive composition per lineal foot, clad with metal either with or without a covering of tapes, yarns, plastics or waterproofing compounds. Mild detonating fuse, metal clad, and flexible linear shaped charges, metal clad, in lengths not over 26 feet and not exceeding 15 grains per lineal foot having the individual lengths separated from adjacent lengths so that mass propagation will not occur, may be shipped as class C explosives.

(dd) Igniter fuse-metal clad consists of a base metal tube with a core of explosive igniter composition in quantity not exceeding 20 grains per foot.

(ee) Starter cartridges, jet engine, class C, consist of a metal, plastic, and/or rubber case, each containing a pressed cylindrical block of flammable solid material and having in the top of the case a small compartment that encloses an electric squib, small amount of black powder, and/or smokeless powder which constitute an igniter. The starter cartridge is used to activate a mechanical starter for jet engines and must be of a type approved by the Bureau of Explosives except as provided in § 173.51(q) and § 173.86(a).

(ff) "Cartridge, practice ammunition" means a metal cartridge case containing a primer, a propelling charge of not more than 500 grains of propellant powder, and a solid projectile or a projectile containing a smoke spotting charge.

§ 173.101 Small-arms ammunition. (a) Small-arms ammunition must be packed in pasteboard or other inside boxes, or in partitions designed to fit snugly in the outside container, or must be packed in metal clips. The partitions and metal clips must be so designed as to protect the primers from accidental injury. The inside boxes, partitions and metal clips must be packed in securely closed strong outside wooden or fiberboard boxes or metal containers. Blank Industrial Power Load cartridges, similar to the 22 long rim-fire cartridge, may be packed in bulk in securely closed fiberboard boxes.

(b) Small-arms ammunition in pasteboard or other inside boxes, in addition to containers prescribed in paragraph (a) of this section, may be shipped when packed in the same outside container with nonexplosive and nonflammable articles; or with small-arms primers or percussion caps in quantity not to exceed 5 pounds. The weight of the small-arms ammunition packed with other articles must not exceed 55 pounds in outside fiberboard box, or 75 pounds in outside wooden box. The outside package must be a securely closed strong wooden or fiberboard container.

(c) Packages containing small-arms ammunition are excepted from the label prescribed in § 172.411 of this subchapter, but the outside of each package must be plainly marked **"SMALL ARMS AMMUNITION."**

(d) Each package containing cartridges loaded with an Irritating Material must, in addition to marking prescribed herein, be marked **"IRRITATING AGENT"** and must bear the IRRITANT label.

(e) No restrictions other than proper description, packing and marking for small-arms ammunition and additional marking and labeling for tear gas cartridges are prescribed in this part for the transportation of small-arms ammunition and tear gas cartridges.

(f) Shipments of small-arms ammunition, including broken lots which have lost their identity (lot number identification), may be shipped loosely packed in securely closed strong wooden boxes or metal boxes, in carload or truckload lots, when shipments are made by or for the Departments of the Army, Navy or Air Force of the United States Government to depots or manufacturing plants for reprocessing or demilitarization. Seriously deteriorated ammunition or ammunition damaged to the point of exposing incendiary or tracer composition, spillage of propellant powder, or ammunition with other hazardous defects must not be shipped. Each outside package must be plainly marked **"SMALL-ARMS AMMUNITION."**

§ 173.101a Cartridges, practice ammunition. (a) Cartridges, practice ammunition must be packaged in pasteboard or other inside boxes, or in partitions designed to fit snugly in the outside packaging, or must be packed in metal clips. The partitions and metal clips must be so designed as to protect the primers from accidental injury. The inside boxes, partitions, and metal clips must be packaged in securely closed strong outside wooden or fiberboard boxes or metal packagings.

(1) Each package must be plainly marked **"CARTRIDGES, PRACTICE AMMUNITION."**

§ 173.102 Explosive cable cutters; explosive power devices, class C; explosive release devices, or starter cartridges, jet engine, class C explosives. (a) Explosive cable cutters, explosive

power devices, class C, explosive release devices, or starter cartridges, jet engine, class C must be packed in specification containers as follows:

(1) Spec. 12H, 23F, or 23H (§§ 178.209, 178.214, or 178.219 of this chapter). Fiberboard boxes. Authorized gross weight not to exceed 65 pounds.

(2) In addition to specification containers prescribed in this section, explosive cable cutters, explosive power devices, class C, explosive release devices, or starter cartridges, jet engine, class C may be shipped when packed in strong wooden or metal boxes, or other containers approved by the Bureau of Explosives. Starter cartridges, jet engine, must have igniter wires short-circuited when packed for shipment.

(b) Each package must be plainly marked **"EXPLOSIVE CABLE CUTTERS"; "EXPLOSIVE POWER DEVICES, CLASS C"; "EXPLOSIVE RELEASE DEVICES"**, or **"STARTER CARTRIDGES, JET ENGINE, CLASS C EXPLOSIVES"**, as appropriate, and **"HANDLE CAREFULLY—KEEP FIRE AWAY."**

§ 173.103 Blasting caps, blasting caps with safety fuse, blasting caps with metal clad mild detonating fuse, and electric blasting caps, not exceeding 1,000 caps. (a) Blasting caps, blasting caps with safety fuse, blasting caps with metal clad mild detonating fuse, and electric blasting caps, in quantity not exceeding 1,000 caps, must be packed and marked as prescribed in §§ 173.66 and 173.67.

§ 173.104 Cordeau detonant fuse, mild detonating fuse, metal clad or flexible linear shaped charges, metal clad. (a) Cordeau detonant fuse, mild detonating fuse, metal clad or flexible linear shaped charges, metal clad must not be packed in the same package with detonators or with any high explosive.

(b) Cordeau detonant fuse, mild detonating fuse, metal clad or flexible linear shaped charges, metal clad, must be packed in wooden or fiberboard boxes.

(c) Each outside container must be plainly marked **"CORDEAU DETONANT FUSE—HANDLE CAREFULLY," "MILD DETONATING FUSE, METAL CLAD—HANDLE CAREFULLY"** or **"FLEXIBLE LINEAR SHAPED CHARGES, METAL CLAD—HANDLE CAREFULLY"** as the case may be.

§ 173.105 Percussion, tracer, combination, time fuzes and tracers. (a) Percussion, tracer, combination, time fuzes and tracers must be packed in strong, tight, outside wooden boxes or spec. 23F (§ 178.214 of this subchapter) fiberboard boxes, with special provision for securing individual packages of fuzes or tracers against movement in the box.

(b) The gross weight of one outside wooden box must not exceed 150 pounds, and the gross weight of one outside fiberboard box must not exceed 65 pounds.

(c) Each outside container must be plainly marked with proper descriptive name and also **"HANDLE CAREFULLY".**

(d) No restrictions other than proper description, packing, and marking are prescribed in this part for the transportation of percussion, tracer, time, or combination fuzes, or tracers.

§ 173.106 Cartridge bags, empty, with black powder igniters, igniters, safety squibs, electric squibs, delay electric igniters, igniter fuse-metal clad, and fuse lighters or fuse igniters. (a) Cartridge bags, empty, with black powder igniters, igniters, safety squibs, electric squibs, delay electric igniters, igniter fuse-metal clad, and fuse lighters or fuse igniters must be packed in strong fiberboard or wooden boxes or wooden or metal barrels or drums properly described and properly marked with the name of the article packed therein.

§ 173.107 Primers, percussion caps, grenades, empty, primed, and cartridge cases, empty, primed. (a) Primers (cannon, combination and small arms), percussion caps, and empty grenades, primed, must be packed in strong, tight, outside wooden boxes, except as otherwise provided herein, with special provision for securing individual packages against movement in the box.

(b) Empty cartridge cases, primed, must be packed in strong, tight, outside wooden or fiberboard boxes, or in specification packagings as follows:

(1) Specification 21C (§ 178.224 of this subchapter) fiber drum. Each drum must be constructed to the specification requirements for a drum containing at least 250 pounds net weight of contents. Each drum having a metal top or bottom must have a protective corrugated paperboard pad inserted between the contents and the metal.

(c) Small-arms primers containing anvils must be packed in cellular inside packages, with partitions separating the layers and columns of the primers, so that the explosion of a portion of the primers in the completed shipping package will not cause the explosion of all the primers. They must be packed as prescribed in paragraphs (a) of this section or in spec. 12B (§ 178.205 of this subchapter) fiberboard boxes, and equipped with corrugated fiberboard liners having Mullen or Cady test equal to or exceeding that of the box, except liner is not required for full depth telescope style box which may be closed as specified by § 178.205-17(a)(2) of this subchapter. Not more than 5,000 primers shall be packed in each fiberboard box.

(1) Spec. 23H (§ 178.219 of this subchapter) Fiberboard boxes of full depth telescope style with top section having extended end flaps and bottom section with extended side flaps designed to tuck under and form boxes without glued or stapled joints. Boxes shall have full height inside perimeter liner and top and bottom full area pads of double-wall corrugated fiberboard. Hand-holes oval in shape, not more than 1 inch in width by 4 inches in length and horizontal with top score line, are authorized in ends of boxes. Primers shall be packed in cellular inside packages with partitions separating the layers and columns of the primers as required by the introductory text of this paragraph. Not more than 50,000 primers shall be packed in one outside box.

(d) Percussion caps must be packed in metal or other inside boxes containing not more than 500 caps; the construction of the cap or packing and the kind and quantity of explosives in each must be such that the explosion of a part of the caps in the completed shipping package will not cause the explosion of all the caps.

(1) Specification 12B (§ 178.205 of this subchapter). Fiberboard box. Caps must be packed in inside metal cans containing not more than 100 caps each. Can must then be packed in a chipboard box with not more than 10 cans per box. Not more than 5 chipboard boxes shall be packed in the 12B fiberboard box. The completed package must be such that the explosion of a part of the caps will not cause the explosion of all the caps.

(2) Specification 12B (§ 178.205 of this subchapter). Fiberboard box. Caps must be packed in inside plastic cans containing not more than 100 caps each. Cans must then be packed in a chipboard box with not more than 8 such chipboard boxes packed tightly in the 12B fiberboard box. The completed package must be such that explosion of part of the caps will not cause the explosion of all of the caps.

(e) Small-arms primers and/or percussion caps may be packed with nonexplosive and/or nonflammable articles, or with small-arms ammunition as provided in § 173-101(b). Small-arms primers may be included with propellant explosives (solid), class B, in the same outside container as provided in § 173.93(g)(1). The weight of the small-arms primers or percussion caps must not exceed 5 pounds in any such outside container.

(f) The gross weight of one outside package must not exceed 150 pounds.

(g) Each outside container must be plainly marked with proper descriptive name and also **"HANDLE CAREFULLY".**

(h) No restrictions other than proper shipping name, packing and marking are prescribed in this part for the transportation of percussion caps, cannon primers, small-arms primers, combination primers, empty cartridge cases primed, or empty grenades primed.

§ 173.108 Common fireworks, signal flares, hand signal devices, smoke signals, smoke candles, smoke grenades, smoke pots, and Very signal cartridges. (a) Class C explosives covered by this section must, unless otherwise specifically provided for, be securely packed in packages complying with the following specifications:

(1) [Reserved]

(2) Spec. 15A, 15B, 16A, or 19A (§§ 178.168, 178.169, 178.185, or 178.190 of this subchapter). Wooden boxes. Gross weight not to exceed 100 pounds, except gross weight of 500 pounds is authorized for Very signal cartridges only.

(3) Spec. 12B (§ 178.205 of this subchapter) Fiberboard boxes. Gross weight not to exceed 65 pounds.

(4) Firecrackers, Chinese, in addition to containers specified in paragraph (a)(1), (2), and (3) of this section, may also be transported in the package in which they are imported, provided these packages consist of wooden boxes, or fiberboard boxes, spec. 12B (§ 178.205 of this subchapter), in good condition, completely covered with strong matting and do not weigh more than 100 pounds, gross.

(5) Fireworks, such as sparklers, with match tip or head, or similar ignition point or surface, must have each individual tip, head, or similar ignition point or surface entirely covered and securely protected against accidental contact or friction.

(6) Signal flares may be packed with nonexplosive or nonflammable articles provided the outside packages are marked as prescribed in this section.

(b) [Reserved]

(c) Except as otherwise specified herein the gross weight of one outside package containing common fireworks must not exceed 100 pounds.

(d) Each outside package must be plainly marked in letters not less than seven-sixteenths of an inch in height "Common Fireworks," "Signal Flares," "Hand Signal Devices," "Smoke Signals," "Smoke Candles," "Smoke Pots," "Smoke Grenades," or "Very Signal Cartridges," as appropriate, and with the additional words "Handle Carefully—Keep Fire Away."

§ 173.109 Toy caps. (a) Toy caps must be packed in containers complying with the following specifications:

(1) Spec. 15A, 15B, 16A, or 19A (§§ 178.168, 178.169, 178.185, or 178.190 of this subchapter). Wooden boxes. Gross weight not to exceed 150 pounds.

(2) Spec. 12B (§ 178.205 of this subchapter). Fiberboard boxes. Gross weight not to exceed 65 pounds.

(3) Toy caps, in addition to containers specified in subparagraphs (1) and (2) of this paragraph, may be transported in the package in which they are imported, provided the package consists of a wooden box, metal-lined, in good condition, and weighing not over 100 pounds gross. Inside packages must be as defined in § 173.100(p).

(b) Toy caps may be packed with nonexplosive or nonflammable articles provided the outside containers are marked as prescribed herein.

(c) Toy paper caps of any kind must not be packed with fireworks.

(d) Each outside container must be plainly marked **"TOY CAPS—HANDLE CAREFULLY".**

[2]§ 173.110 Charged oil well jet perforating guns, total explosive content in guns not exceeding 20 pounds per motor vehicle or pallet. (a) Charged oil well jet perforating guns transported by motor vehicles operated by private carriers engaged in oil well operations in which the total weight of the explosive contents of shaped charges assembled to guns being transported does not exceed 20 pounds per such vehicle must be packed as prescribed in § 173.80(b), (c), (d) and (e).

(b) Charged oil well jet perforating guns may be offered for transportation and transported only by private carrier by highway.

[2](c) Charged oil well jet perforating guns may be offered for transportation and transported by private offshore oil well supply vessels only when carried in special motor vehicles as prescribed in § 173.80 or on offshore down hole tool pallets provided that:

(1) No blasting caps, electric blasting caps or other firing devices shall be affixed or installed in the guns;

(2) Each shaped charge shall contain not over 4 ounces of explosives;

(3) Each shaped charge, if not completely enclosed in glass or metal, shall be fully protected by a metal cover after installation in the gun; and

(4) The total weight of the explosive contents of shaped charges assembled in guns being carried does not exceed 20 pounds per vehicle or pallet. Each cargo vessel compartment may contain up to 20 pounds of explosive content if the segregation requirements of § 176.83(b)(3) are met. More than one pallet or vehicle, each containing not more than 20 pounds of explosive content, may be stowed "on deck" provided a minimum horizontal separation distance of 10 feet is provided.

§ 173.111 Cigarette loads, explosive auto alarms, toy propellant devices, toy smoke devices, trick matches, and trick noise makers, explosive. (a) Cigarette loads, explosive auto alarms, toy propellant devices, toy smoke devices, trick matches, and trick noise makers, explosive must be packed in specification containers as follows:

(1) Spec. 15A, 15B, 16A, or 19A (§ 178.168, § 178.169, § 178.185, or § 178.190 of this subchapter). Wooden boxes. Gross weight not to exceed 150 pounds.

(2) Spec. 12B (§ 178.205 of this subchapter). Fiberboard boxes. Gross weight not to exceed 65 pounds.

(3) Each outside container must be plainly marked with the proper descriptive name and **"HANDLE CAREFULLY".**

§ 173.112 Oil well cartridges. (a) Oil well cartridges must be so packed that the explosive composition does not exceed 20 grains per cubic inch of space in the outside shipping container and must be in specification containers as follows:

(1) Spec. 15A, 15B, 16A, or 19A (§ 178.168, § 178.169, § 178.185, or § 178.190 of this subchapter). Wooden boxes. Gross weight not to exceed 150 pounds.

(2) Spec. 12B (§ 178.205 of this subchapter). Fiberboard boxes. Gross weight not to exceed 65 pounds.

(3) Each outside container must be plainly marked with the name "Oil Well Cartridge" and **"HANDLE CAREFULLY".**

§ 173.113 Detonating fuzes, class C explosives. (a) Detonating fuzes, class C explosives, must be packed in specification containers as follows:

(1) Spec. 12H (§ 178.209 of this subchapter). Fiberboard boxes either without liners with well secured inside pasteboard cartons or with suitable filler or lining material to prevent movement in the box.

(2) In addition to specification containers prescribed in this section, detonating fuzes, class C explosive, may be packed in well secured strong, tight outside wooden or metal boxes. The gross weight of the outside wooden or metal box must not exceed 190 pounds.

(b) Each outside package must be plainly marked **"DETONATING FUZES, CLASS C EXPLOSIVES—HANDLE CAREFULLY".**

§ 173.114 Actuating cartridges, explosive, fire extinguisher or valve. (a) Actuating cartridges, explosive, fire extinguisher or valve must be packed in strong wooden or fiberboard boxes.

(b) Each outside container must be plainly marked **"ACTUATING CARTRIDGES, EXPLOSIVE, FIRE EXTINGUISHER—HANDLE CAREFULLY"** or **"ACTUATING CARTRIDGES, EXPLOSIVE, VALVE—HANDLE CAREFULLY".**

(c) When shipped as components with fire extinguisher or with valve and with not more than 2 cartridges for each extinguisher or valve, they are exempt from Parts 170-189 of this subchapter.

[2]§ 173.114a Blasting agents.

(a) *Definition of a blasting agent.* A blasting agent is a material designed for blasting which has been tested in accordance with paragraph (b) of this section, and found to be so insensitive that there is very little probability of accidental initiation to explosion or of transition from deflagration to detonation.

(b) *Tests.* Materials which are to be described as Blasting agents, n.o.s. for purposes of transportation, must be tested in accordance with this paragraph.

(1) Blasting cap sensitivity test.

(i) The container used for the blasting agent sample must be cylindrical, having a diameter of 3⅛ inches and a length of 6⅛ inches. The container must provide essentially no confinement.

(ii) The container must be filled with the sample. Solid materials must be packed to the same filling density as they will be packed in the shipping container. The temperature of the sample must be between 70°F. and 75°F. If it is difficult to achieve an appropriate filling density in the test container, e.g., auger packed products, it may be necessary to auger fill a special container for the test.

(iii) The filled container must be placed on a solid lead cylinder 4 inches long by 2 inches diameter which must, in turn, be placed upright on a firm surface.

(iv) A commercial No. 8 fuse blasting cap or electric blasting cap must be inserted in the center of the top of the sample for the full length of the cap. A No. 8 commercial cap means a cap which contains 0.40-0.45 grams of PETN base charge pressed into an aluminum shell with bottom thickness not to exceed 0.03 inches to a specific gravity of not less than 1.4 g/cc and primed with standard weights of primer, in accordance with the manufacturer's specifications.

(v) The blasting cap must be initiated from a safe position.

(vi) If the lead block is compressed ⅛-inch or more, the material is considered to have detonated.

(vii) The test must be conducted three time or until detonation occurs, whichever comes first.

(viii) A material which detonates in any trial may not be described as Blasting agent, n.o.s., for purposes of transportation.

(2) Differential thermal analysis test.

(i) This test must be conducted using a standard, commercially produced, differential thermal analysis instrument or a laboratory-constructed apparatus which gives comparable results.

(ii) The portion of the blasting agent tested must be representative of the complete mixture.

(iii) The test must be conducted three times. If the first exotherm exhibited by the material in any trial is less than 212°F., it may not be described as a Blasting agent n.o.s. for purposes of transportation.

(3) Thermal stability test.

(i) At least 50 grams of the material must be placed in a loosely covered glass vessel and maintained at 167°F. for 48 consecutive hours.

(ii) A material which ignites or evidences decomposition by fumes, discoloration, or other characteristics may not be described as Blasting agent, n.o.s., for purposes of transportation.

(4) Electrostatic sensitivity test.

(i) The apparatus must be designed so that an electrostatic spark can be caused to jump from a pointed electrode to a metal plate which also serves as a sample holder.

(ii) Ten milligrams of material must be used for each test. The portion of the blasting agent tested must be representative of the complete mixture.

(iii) If the test portion flames, smolders, or glows from the spark, the material is considered to have ignited.
(iv) The test must be conducted three times or until ignition occurs, whichever comes first.
(v) A material which ignites in any trail when exposed to a spark of 0.006 joules delivered from a 0.002 to 0.004 micro-farad capacitor may not be described as a Blasting agent, n.o.s., for purposes of transportation.

(5) Impact sensitivity test.
(i) Impact tests must be conducted in the Bureau of Explosives Impact Tester.
(ii) The tests must be run on ten milligram samples. The test portions must be representative of the complete mixture.
(iii) The drop height used in all trials must be ten inches.
(iv) The test must be conducted ten times or until an explosion occurs, whichever comes first. An explosion is evidenced by flame or flame and noise. The production of smoke alone is not evidence of explosion.
(v) A material which explodes in any trial may not be described as Blasting agent, n.o.s., for purposes of transportation.

(6) Fire test.
(i) The largest package (not to exceed 200 kg) of each type to be offered for transportation must be placed on incombustible supports and subjected to a fire.
(ii) The fuel used may be kerosene-soaked wood, flammable or combustible liquid, or flammable gas.
(iii) The fire shall be large enough to engulf the bottom of the package. The flames must reach at least half way up on all sides.
(iv) The duration of the fire must be such as to cause the material in the package to burn or fume off completely, except for substances such as the oxides of aluminum or iron which are incombustible.
(v) Explosion is evidenced by a loud noise and the projection of fragments from the fire area.
(vi) This test must be conducted at least once.
(vii) Any material which explodes in this test may not be described as Blasting agent, n.o.s., for purposes of transportation.

(c) Packaging for blasting agents. (1) Each package of blasting agents when prepared for shipment must comply with the applicable requirements of § 173.24 and pass one of the following tests:
(i) Rigid packages (e.g., boxes and drums), prepared as for shipment, must be capable of withstanding a four-foot drop onto solid concrete so as to strike the most vulnerable point on the package without rupture or any loss of contents.
(ii) Non-rigid packages (e.g., tubes and bags), prepared as for shipment, must be capable of withstanding three four-foot drops onto solid concrete without rupture or any loss of contents.

(3) Blasting agents shall not be transported in portable tanks, cargo tanks, or tank cars except in accordance with the terms of specific exemptions issued by the Office of Hazardous Materials Regulation.

(d) See §§ 174.81, 176.80, and 177.848 of this subchapter for loading requirements.

APPENDIX B

ATF: EXPLOSIVES LAW AND REGULATIONS

Federal Law Relating to Explosives

Reproduced below is Federal law relating to explosives, taken from 18 U.S.C. Chapter 40, as amended.

Editor's Note: Chapter 40 added by Title XI of Public Law 91-452, October 15, 1970. Congressional purpose of Title: "The Congress hereby declares that the purpose of this title is to protect interstate and foreign commerce against interference and interruption by reducing the hazard to persons and property arising from misuse and unsafe or insecure storage of explosive materials. It is not the purpose of this title to place any undue or unnecessary Federal restrictions or burdens on law-abiding citizens with respect to the acquisition, possession, storage, or use of explosive materials for industrial, mining, agricultural, or other lawful purposes, or to provide for the imposition by Federal regulations of any procedures or requirements other than those reasonably necessary to implement and effectuate the provisions of this title."

Chapter 40.—Importation, Manufacture, Distribution and Storage of Explosive Materials

Section 841. Definitions

As used in this chapter—

(a) 'Person' means any individual, corporation, company, association, firm, partnership, society, or joint stock company.

(b) 'Interstate or foreign commerce' means commerce between any place in a State and any place outside of that State, or within any possession of the United States (not including the Canal Zone) or the District of Columbia, and commerce between places within the same State but through any place outside of that State. 'State' includes the District of Columbia, the Commonwealth of Puerto Rico, and the possessions of the United States (not including the Canal Zone).

(c) 'Explosive materials' means explosives, blasting agents, and detonators.

(d) Except for the purposes of subsections (d), (e), (f), (g), (h), (i), and (j) of section 844 of this title, 'explosives' means any chemical compound mixture, or device, the primary or common purpose of which is to function by explosion; the term includes, but is not limited to, dynamite and other high explosives, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, and igniters. The Secretary shall publish and revise at least annually in the Federal Register a list of these and any additional explosives which he determines to be within the coverage of this chapter. For the purpose of subsections (d), (e), (f), (g), (h), and (i) of section 844 of this title, the term 'explosive' is defined in subsection (j) of such section 844.

(e) 'Blasting agent' means any material or mixture, consisting of fuel and oxidizer, intended for blasting, not otherwise defined as an explosive: Provided, That the finished product, as mixed for use or shipment, cannot be detonated by means of a numbered 8 test blasting cap when unconfined.

(f) 'Detonator' means any device containing a detonating charge that is used for initiating detonation in an explosive; the term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses and detonating-cord delay connectors.

(g) 'Importer' means any person engaged in the business of importing or bringing explosive materials into the United States for purposes of sale or distribution.

(h) 'Manufacturer' means any person engaged in the business of manufacturing explosive materials for purposes of sale or distribution or for his own use.

(i) 'Dealer' means any person engaged in the business of distributing explosive materials at wholesale or retail.

(j) 'Permittee' means any user of explosives for a lawful purpose, who has obtained a

user permit under the provisions of this chapter.

(k) 'Secretary' means the Secretary of the Treasury or his delegate.

(l) 'Crime punishable by imprisonment for a term exceeding one year' shall not mean (1) any Federal or State offenses pertaining to antitrust violations, unfair trade practices, restraints of trade, or other similar offenses relating to the regulation of business practices as the Secretary may by regulation designate, or (2) any State offense (other than one involving a firearm or explosive) classified by the laws of the State as a misdemeanor and punishable by a term of imprisonment of two years or less.

(m) 'Licensee' means any importer, manufacturer, or dealer licensed under the provisions of this chapter.

(n) 'Distribute' means sell, issue, give, transfer, or otherwise dispose of.

Section 842. Unlawful acts

(a) It shall be unlawful for any person—

(1) to engage in the business of importing, manufacturing, or dealing in explosive materials without a license issued under this chapter;

(2) knowingly to withhold information or to make any false or fictitious oral or written statement or to furnish or exhibit any false, fictitious, or misrepresented identification, intended or likely to deceive for the purpose of obtaining explosive materials, or a license, permit, exemption, or relief from disability under the provisions of this chapter; and

(3) other than a licensee or permittee knowingly—

(A) to transport, ship, cause to be transported, or receive in interstate or foreign commerce any explosive materials, except that a person who lawfully purchases explosive materials from a licensee in a State contiguous to the State in which the purchaser resides may ship, transport, or cause to be transported such explosive materials to the State in which he resides and may receive such explosive materials in the State in which he resides, if such transportation, shipment, or receipt is permitted by the law of the State in which he resides; or

(B) to distribute explosive materials to any person (other than a licensee or permittee) who the distributor knows or has reasonable cause to believe does not reside in the State in which the distributor resides.

(b) It shall be unlawful for any licensee knowingly to distribute any explosive materials to any person except—

(1) a licensee;

(2) a permittee; or;

(3) a resident of the State where distribution is made and in which the licensee is licensed to do business or a State contiguous thereto if permitted by the law of the State of the purchaser's residence.

(c) It shall be unlawful for any licensee to distribute explosive materials to any person who the licensee has reason to believe intends to transport such explosive materials into a State where the purchase, possession, or use of explosive materials is prohibited or which does not permit its residents to transport or ship explosive materials into it or to receive explosive materials in it.

(d) It shall be unlawful for any licensee knowingly to distribute explosive materials to any individual who:

(1) is under twenty-one years of age;

(2) has been convicted in any court of a crime punishable by imprisonment for a term exceeding one year;

(3) is under indictment for a crime punishable by imprisonment for a term exceeding one year;

(4) is a fugitive from justice;

(5) is an unlawful user of marihuana (as defined in section 4761 of the Internal Revenue Code of 1954) or any depressant or stimulant drug (as defined in section 201(v) of the Federal Food, Drug, and Cosmetic Act) or narcotic drug (as defined in section 4721(a) of the Internal Revenue Code of 1954); or

(6) has been adjudicated a mental defective.

(e) It shall be unlawful for any licensee knowingly to distribute any explosive materials to any person in any State where the purchase, possession, or use by such person of such explosive materials would be in violation of any State law or any published ordinance applicable at the place of distribution.

(f) It shall be unlawful for any licensee or permittee willfully to manufacture, import, purchase, distribute, or receive explosive materials without making such records as the Secretary may by regulation require, including, but not limited to, a statement of intended use, the name, date, place of birth, social security number or taxpayer identification number, and place of residence of any natural person to whom explosive materials are distributed. If explosive materials are distributed to a corporation or other business entity, such records shall include the identity and principal and local places of business and the name, date, place of birth, and place of residence of the natural person acting as agent of the corporation or other business entity in arranging the distribution.

(g) It shall be unlawful for any licensee or permittee knowingly to make any false entry in any record which he is required to keep pursuant to this section or regulations promulgated under section 847 of this title.

(h) It shall be unlawful for any person to receive, conceal, transport, ship, store, barter, sell, or dispose of any explosive materials knowing or having reasonable cause to believe that such explosive materials were stolen.

(i) It shall be unlawful for any person—

(1) who is under indictment for, or who has been convicted in any court of, a crime punishable by imprisonment for a term exceeding one year;

(2) who is a fugitive from justice;

(3) who is an unlawful user of or addicted to marihuana (as defined in Section 4761 of the Internal Revenue Code of 1954) or any depressant or stimulant drug (as defined in section 201(v) of the Federal Food, Drug, and Cosmetic Act) or narcotic drug (as defined in section 4731(a) of the Internal Revenue Code of 1954); or

(4) who has been adjudicated as a mental defective or who has been committed to a mental institution; to ship or transport any explosive in interstate or foreign commerce or to receive any explosive which has been shipped or transported in interstate or foreign commerce.

(j) It shall be unlawful for any person to store any explosive material in a manner not in conformity with regulations promulgated by the Secretary. In promulgating such regulations, the Secretary shall take into consideration the class, type, and quantity of explosive materials to be stored, as well as the standards of safety and security recognized in the explosives industry.

(k) It shall be unlawful for any person who has knowledge of the theft or loss of any explosive materials from his stock, to fail to report such theft or loss within twenty-four hours of discovery thereof, to the Secretary and to appropriate local authorities.

Section 843. Licenses and user permits

(a) An application for a user permit or a license to import, manufacture, or deal in explosive materials shall be in such form and contain such information as the Secretary shall by regulation prescribe. Each applicant for a license or permit shall pay a fee to be charged as set by the Secretary, said fee not to exceed $200 for each license or permit. Each license or permit shall be valid for no longer than three years from date of issuance and shall be renewable upon the same conditions and subject to the same restrictions as the original license or permit and upon payment of a renewal fee not to exceed one-half of the original fee.

(b) Upon the filing of a proper application and payment of the prescribed fee, and subject to the provisions of this chapter and other applicable laws, the Secretary shall issue to such applicant the appropriate license or permit if—

(1) the applicant (including in the case of a corporation, partnership, or association, any individual possessing, directly or indirectly, the power to direct or cause the direction of the management and policies of the corporation, partnership, or association) is not a person to whom the distribution of explosive materials would be unlawful under section 842(d) of this chapter;

(2) the applicant has not willfully violated any of the provisions of this chapter or regulations issued hereunder;

(3) the applicant has in a State premises from which he conducts or intends to conduct business;

(4) the applicant has a place of storage for explosive materials which meets such standards of public safety and security against theft as the Secretary by regulations shall prescribe; and

(5) the applicant has demonstrated and certified in writing that he is familiar with all published State laws and local ordinances relating to explosive materials for the location in which he intends to do business.

(c) The Secretary shall approve or deny an application within a period of forty-five days beginning on the date such application is received by the Secretary.

(d) The Secretary may revoke any license or permit issued under this section if in the opinion of the Secretary the holder thereof has violated any provision of this chapter or any rule or regulation prescribed by the Secretary under this chapter, or has become ineligible to acquire explosive materials under section 842(d). The Secretary's action under this subsection may be reviewed only as provided in subsection (e) (2) of this section.

(e) (1) Any person whose application is denied or whose license or permit is revoked shall receive a written notice from the Secretary stating the specific grounds upon which such denial or revocation is based. Any notice of a revocation of a license or permit shall be given to the holder of such license or permit prior to or concurrently with the effective date of the revocation.

(2) If the Secretary denies an application for, or revokes a license, or permit, he shall, upon request by the aggrieved party, promptly hold a hearing to review his denial or revocation. In the case of a revocation, the Secretary may upon a request of the holder stay the effective date of the revocation. A hearing under this section shall be at a location convenient to the aggrieved party. The Secretary shall give written notice of his decision to the aggrieved party within a reasonable time after the hearing. The aggrieved party may, within sixty days after receipt of the Secretary's written decision, file a petition with the United States court of appeals for the district in which he resides or has his principal place of business for a judicial review of such denial or revocation, pursuant to sections 701—706 of title 5, United States Code.

(f) Licensees and permittees shall make available for inspection at all reasonable times their records kept pursuant to this chapter or the regulations issued hereunder, and shall submit to the Secretary such reports and information with respect to such records and the contents thereof as he shall by regulations prescribe. The Secretary may enter during business hours the premises (including places of storage) of any licensee or permittee, for the purpose of inspecting or examining (1) any records or documents required to be kept by such licensee or permittee, under the provisions of this chapter or regulations issued hereunder, and (2) any explosive materials kept or stored by such licensee or permittee at such premises. Upon the request of any State or any political subdivision thereof, the Secretary may make available to such State or any political subdivision thereof, any information which he may obtain by reason of the provisions of this chapter with respect to the identification of persons within such State or political subdivision thereof, who have purchased or received explosive materials, together with a description of such explosive materials.

(g) Licenses and permits issued under the provisions of subsection (b) of this section shall be kept posted and kept available for inspection on the premises covered by the license and permit.

Section 844. Penalties

(a) Any person who violates subsections (a) through (i) of section 842 of this chapter shall be fined not more than $10,000 or imprisoned not more than ten years, or both.

(b) Any person who violates any other provision of section 842 of this chapter shall be fined not more than $1,000 or imprisoned not more than one year, or both.

(c) Any explosive materials involved or used or intended to be used in any violation of the provisions of this chapter or any other rule or regulation promulgated thereunder or any violation of any criminal law of the United States shall be subject to seizure and forfeiture, and all provisions of the Internal Revenue Code of 1954 relating to the seizure, forfeiture, and disposition of firearms, as defined in section 5845(a) of that Code, shall, so far as applicable, extend to seizures and forfeitures under the provisions of this chapter.

(d) Whoever transports or receives, or attempts to transport or receive, in interstate or foreign commerce any explosive with the knowledge or intent that it will be used to kill, injure, or intimidate any individual or unlawfully to damage or destroy any building, vehicle, or other real or personal property, shall be imprisoned for not more than ten years, or

fined not more than $10,000, or both; and if personal injury results shall be imprisoned for not more than twenty years or fined not more than $20,000, or both; and if death results, shall be subject to imprisonment for any term of years, or to the death penalty or to life imprisonment as provided in section 34 of this title.

(e) Whoever, through the use of the mail, telephone, telegraph, or other instrument of commerce, willfully makes any threat, or maliciously conveys false information knowing the same to be false, concerning an attempt or alleged attempt being made, or to be made, to kill, injure, or intimidate any individual or unlawfully to damage or destroy any building, vehicle, or other real or personal property by means of an explosive shall be imprisoned for not more than five years or fined not more than $5,000, or both.

(f) Whoever maliciously damages or destroys, or attempts to damage or destroy, by means of an explosive, any building, vehicle, or other personal or real property in whole or in part owned, possessed, or used by, or leased to, the United States, any department or agency thereof, or any institution or organization receiving Federal financial assistance shall be imprisoned for not more than ten years, or fined not more than $10,000, or both; and if personal injury results shall be imprisoned for not more than twenty years, or fined not more than $20,000, or both; and if death results shall be subject to imprisonment for any term of years, or to the death penalty or to life imprisonment as provided in section 34 of this title.

(g) Whoever possesses an explosive in any building in whole or in part owned, possessed, or used by, or leased to, the United States or any department or agency thereof, except with the written consent of the agency, department, or other person responsible for the management of such building, shall be imprisoned for not more than one year, or fined not more than $1,000, or both.

(h) Whoever—

(1) uses an explosive to commit any felony which may be prosecuted in a court of the United States, or

(2) carries an explosive unlawfully during the commission of any felony which may be prosecuted in a court of the United States, shall be sentenced to a term of imprisonment for not less than one year nor more than ten years. In the case of his second or subsequent conviction under this subsection, such person shall be sentenced to a term of imprisonment for not less than five years nor more than twenty-five years, and, notwithstanding any other provision of law, the court shall not suspend the sentence of such person or give him a probationary sentence.

(i) Whoever maliciously damages or destroys, or attempts to damage or destroy, by means of an explosive, any building, vehicle, or other real or personal property used in interstate or foreign commerce or in any activity affecting interstate or foreign commerce shall be imprisoned for not more than ten years or fined not more than $10,000, or both; and if personal injury results shall be imprisoned for not more than twenty years or fined not more than $20,000, or both; and if death results shall also be subject to imprisonment for any term of years, or to the death penalty or to life imprisonment as provided in section 34 of this title.

(j) For the purposes of subsections (d), (e), (f), (g), (h), and (i) of this section, the term 'explosive' means gunpowders, powders used for blasting, all forms of high explosives, blasting materials, fuzes (other than electric circuit breakers), detonators, and other detonating agents, smokeless powders, other explosive or incendiary devices within the meaning of paragraph (5) of section 232 of this title, and any chemical compounds, mechanical mixture, or device that contains any oxidizing and combustible units, or other ingredients, in such proportions, quantities, or packing that ignition by fire, by friction, by concussion, by percussion, or by detonation of the compound, mixture, or device or any part thereof may cause an explosion.

Section 845. Exceptions; relief from disabilities

(a) Except in the case of subsections (d), (e), (g), (h), and (i) of section 844 of this title, this chapter shall not apply to:

(1) any aspect of the transportation of explosive materials via railroad, water, highway, or air which are regulated by the United States Department of Transportation and agencies thereof;

(2) the use of explosive materials in medicines and medicinal agents in the forms prescribed by the official United States Pharmacopeia, or the National Formulary;

(3) the transportation, shipment, receipt, or importation of explosive materials for delivery to any agency of the United States or to any State or political subdivision thereof;

(4) small arms ammunition and components thereof;

(5) commercially manufactured black powder in quantities not to exceed 50 pounds, percussion caps, safety and pyrotechnic fuses, quills, quick and slow matches, and friction primers, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms as defined in section 921(a) (16) of title 18 of the United States Code, or in antique devices as exempted from the term 'destructive device' in section 921 (a) (4) of title 18 of the United States Code; and

(6) the manufacture under the regulation of the military department of the United States of explosive materials for, or their distribution to or storage or possession by the military or naval services or other agencies of the United States; or to arsenals, navy yards, depots, or other establishments owned by, or operated by or on behalf of, the United States.

(b) A person who had been indicted for or convicted of a crime punishable by imprisonment for a term exceeding one year may make application to the Secretary for relief from the disabilities imposed by this chapter with respect to engaging in the business of importing, manufacturing, or dealing in explosive materials, or the purchase of explosive materials, and incurred by reason of such indictment or conviction, and the Secretary may grant such relief if it is established to his satisfaction that the circumstances regarding the indictment or conviction, and the applicant's record and reputation, are such that the applicant will not be likely to act in a manner dangerous to public safety and that the granting of the relief will not be contrary to the public interest. A licensee or permittee who makes application for relief from the disabilities incurred under this chapter by reason of indictment or conviction, shall not be barred by such indictment or conviction from further operations under his license or permit pending final action on an application for relief filed pursuant to this section.

Section 846. Additional powers of the Secretary

The Secretary is authorized to inspect the site of any accident, or fire, in which there is reason to believe that explosive materials were involved, in order that if any such incident has been brought about by accidental means, precautions may be taken to prevent similar accidents from occurring. In order to carry out the purpose of this subsection, the Secretary is authorized to enter into or upon any property where explosive materials have been used, are suspected of having been used, or have been found in an otherwise unauthorized location. Nothing in this chapter shall be construed as modifying or otherwise affecting in any way the investigative authority of any other Federal agency. In addition to any other investigatory authority they have with respect to violations or provisions of this chapter, the Attorney General and the Federal Bureau of Investigation, together with the Secretary, shall have authority to conduct investigations with respect to violations of subsection (d), (e), (f), (g), (h), or (i) of section 844 of this title.

Section 847. Rules and regulations

The administration of this chapter shall be vested in the Secretary. The Secretary may prescribe such rules and regulations as he deems reasonably necessary to carry out the provisions of this chapter. The Secretary shall give reasonable public notice, and afford to interested parties opportunity for hearing, prior to prescribing such rules and regulations.

Section 848. Effect on State law

No provision of this chapter shall be construed as indicating an intent on the part of the Congress to occupy the field in which such provision operates to the exclusion of the law of any State on the same subject matter, unless there is a direct and positive conflict between such provision and the law of the State so that the two cannot be reconciled or consistently stand together.

Subject Index to Commerce in Explosives (Part 181)

Commerce in Explosives

Part 181

Title 27 Code of Federal Regulations

171-665 O - 93 - 2

Authority: The provisions of this Part 181 issued under 84 Stat. 952-960, 18 U.S.C. 841-848, unless otherwise noted.

Subpart A—Introduction

Section 181.1 Scope of regulations.

(a) In general. The regulations contained in this part relate to commerce in explosives and are promulgated to implement title XI, Regulation of Explosives (18 U.S.C. Chapter 40; 84 Stat. 952), of the Organized Crime Control Act of 1970 (84 Stat. 922).

(b) Procedural and substantive requirements. This part contains the procedural and substantive requirements relative to:

(1) The interstate or foreign commerce in explosive materials;

(2) The licensing of manufacturers and importers of, and dealers in, explosive materials;

(3) The issuance of user permits;

(4) The conduct of business by licensees and operations by permittees;

(5) The storage of explosive materials;

(6) The records and reports required by licensees and permittees;

(7) Relief from disabilities under this part; and

(8) Exemptions, unlawful acts, penalties, seizures and forfeitures.

(c) **Persons engaged in business or operations in black powder on January 4, 1975.** This part fully applies to persons engaged in business or operations in black powder on January 4, 1975, requiring a license or permit under this part, who have filed an application for such license or permit prior to April 28, 1977, and who are continuing such business or operations pending final action on such application.

Section 181.2 Relation to other provisions of law.

The provisions in this part are in addition to, and are not in lieu of, any other provision of law, or regulations, respecting commerce in explosive materials. For regulations applicable to commerce in firearms and ammunition, see Part 178 of this chapter. For regulations applicable to traffic in machine guns, destructive devices, and certain other firearms, see Part 179 of this chapter. For statutes applicable to the registration and licensing of persons engaged in the business of manufacturing, importing or exporting arms, ammunition, or implements of war, see section 414 of the Mutual Security Act of 1954 (22 U.S.C. 1934), and regulations in Part 180 of this chapter and in Parts 121-128 of Title 22, Code of Federal Regulations. For statutes applicable to nonmailable materials, see 18 U.S.C. 1716 and regulations thereunder. For statutes applicable to water quality standards, see 33 U.S.C. 1171(b).

Subpart B—Definitions

Section 181.11 Meaning of terms.

When used in this part and in forms prescribed under this part, where not otherwise distinctly expressed or manifestly incompatible with the intent thereof, terms shall have the meanings ascribed in this section. Words in the plural form shall include the singular, and vice versa, and words importing the masculine gender shall include the feminine. The term "includes" and "including" do not exclude other things not enumerated which are in the same general class or are otherwise within the scope thereof.

Act. Chapter 40 of title 18 of the United States Code.

Editor's Note

The terms regional director and Assistant Regional Commissioner, as found in the text of Part 181, refer to the Regional Regulatory Administrator, which is defined in 181.11.

Ammunition. Small arms ammunition or cartridge cases, primers, bullets, or smokeless propellants designed for use in small arms, and shall include percussion caps and 3/32-inch pyrotechnic safety fuses. The term shall not include black powder.

Approved storage facility. A facility for the storage of explosive materials conforming to the requirements of this part and covered by a license or permit issued under this part.

Army-type structure. A structure approved by the Department of Defense for the storage of explosive materials.

Blasting agent. Any material or mixture, consisting of fuel and oxidizer, intended for blasting, not otherwise defined as an explosive: *Provided,* That the finished product, as mixed for use or shipment, cannot be detonated by means of a numbered 8 test blasting cap when unconfined. A numbered 8 test blasting cap is one containing 2 grams of a mixture of 80 percent mercury fulminate and 20 percent potassium chlorate, or a blasting cap of equivalent strength.

Business premises. When used with respect to a manufacturer, importer or dealer the property on which explosive materials are or will be manufactured, imported, stored or distributed. Such premises shall include the property where the records of a manufacturer, importer or dealer are or will be maintained if different than the premises where explosive materials are or will be manufactured, imported, stored or distributed. When used with respect to a user of explosive materials, the property on which the explosive materials are or will be received or stored. Such premises shall include the property where the records of such user are or will be maintained if different than the premises where explosive materials are or will be received or stored.

Crime punishable by imprisonment for a term exceeding 1 year. Any offense for which the maximum penalty, whether or not imposed, is capital punishment or imprisonment in excess of 1 year. The term shall not include

(a) any Federal or State offenses pertaining to antitrust violations, unfair trade practices or restraints of trade, or (b) any State offense (other than one involving a firearm or explosive) classified by the laws of the State as a misdemeanor and punishable by a term of imprisonment of 2 years or less.

Customs officer. Any officer of the Customs Service or any commissioned, warrant, or petty officer of the Coast Guard, or any agent or other person authorized by law or designated by the Secretary of the Treasury to perform any duties of an officer of the Customs Service.

Dealer. Any person engaged in the business of distributing explosive materials at wholesale or retail.

Detonator. Any device containing a detonating charge that is used for initiating detonation in an explosive; the term includes electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses and detonating-cord delay connectors.

Director. The Director, Bureau of Alcohol, Tobacco, and Firearms, Department of the Treasury, Washington, D.C.

Distribute. To sell, issue, give, transfer, or otherwise dispose of. The term does not include a mere change of possession from a person to his agent or employee in connection with the agency or employment.

District Director. A District Director of Internal Revenue.

Executed under penalties of perjury. Signed with the prescribed declaration under the penalties of perjury as provided on or with respect to the return, form, or other document or, where no form of declaration is prescribed, with the declaration: "I declare under the penalties of perjury that this-(insert type of document, such as, statement, application, request, certificate), including the documents submitted in support thereof, has been examined by me and, to the best of my knowledge and belief, is true, correct, and complete."

Explosive materials. Explosives, blasting agents, and detonators. Such materials shall include all items in the Explosives List provided for in Section 181.23.

Explosives. Any chemical compound mixture, or device, the primary or common purpose of which is to function by explosion; the term includes dynamite and other high explosives, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, and igniters.

Fugitive from justice. Any person who has fled from the jurisdiction of any court of record to avoid prosecution for any crime or to avoid giving testimony in any criminal proceeding. The term shall also include any person who has been convicted of any crime and has fled to avoid imprisonment.

Importer. Any person engaged in the business of importing or bringing explosive materials into the United States for purposes of sale or distribution.

Indictment. Includes an indictment or information in any court under which a crime punishable by imprisonment for a term exceeding 1 year may be prosecuted.

Inhabited building. Any building regularly occupied in whole or in part as a habitation for human beings, or any church, schoolhouse, railroad station, store, or other structure where people are accustomed to assemble, except any building occupied in connection with the manufacture, transportation, storage, or use of explosive materials.

Internal revenue district. An internal revenue district under the jurisdiction of a District Director of Internal Revenue.

Interstate or foreign commerce. Commerce between any place in a State and any place outside of that State, or within any possession of the United States (not including the Canal Zone) or the District of Columbia, and commerce between places within the same State but through any place outside of that State.

Licensed dealer. A dealer licensed under the provisions of this part.

Licensed importer. An importer licensed under the provisions of this part.

Licensed manufacturer. A manufacturer licensed under the provisions of this part to engage in the business of manufacturing explosive materials for purposes of sale or distribution or for his own use.

Licenses manufacturer-limited. A manufacturer licensed under the provisions of this part to engage in the business of manufacturing explosive materials for his own use and not for sale or distribution.

Licensee. Any importer, manufacturer, or dealer licensed under the provisions of this part.

Manufacturer. Any person engaged in the business of manufacturing explosive materials for purposes of sale or distribution or for his own use.

Manufacturer-limited. Any person engaged in the business of manufacturing explosive materials for his own use and not for sale or distribution.

Permittee. Any user of explosives for lawful purpose, who has obtained a user permit under the provisions of this part.

Person. Any individual, corporation, company, association, firm, partnership society, or joint stock company.

Region. A Bureau of Alcohol, Tobacco, and Firearms Region.

Regional regulatory administrator. The principal ATF regional official responsible for administering regulations in this part.

Service Center Director. A director of an internal revenue service center.

State. A State of the United States. The term shall include the District of Columbia, the Commonwealth of Puerto Rico, and the possessions of the United States (not including the Canal Zone).

State of residence. The State in which an individual regularly resides or maintains his home. Temporary sojourn in a State does not make the State of temporary sojourn the State of residence.

U.S.C. The United States Code.

User-limited permit. A user permit valid only for a single purchase transaction, a new permit being required for a subsequent purchase transaction.

User permit. A permit issued to a person authorizing him (1) to acquire for his own use explosive materials from a licensee in a State other than the State in which he resides or from a foreign country, and (2) to transport explosive materials so acquired in interstate or foreign commerce.

Subpart C—Administrative and Miscellaneous Provisions

Section 181.21 Forms prescribed.

The Director is authorized to prescribe all forms required by this part. All of the information called for in each form shall be furnished, as indicated by the headings on the form and the instructions thereon or issued in respect thereto, and as required by this part.

Section 181.22 Alternate methods or procedures; and emergency variations from requirements.

(a) **Alternate methods or procedures.** The permittee or licensee, on specific approval by the Director as provided by this paragraph, may use an alternate method or procedure in lieu of a method or procedure specifically prescribed in this part. The Director may approve an alternate method or procedure, subject to stated conditions when he finds that—

(1) Good cause has been shown for the use of the alternate method or procedure;

(2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and that such alternate method or procedure is substantially equivalent to that specifically prescribed method or procedure; and

(3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of this part.

Where the permittee or licensee desires to employ an alternate method or procedure, he shall submit a written application, in triplicate, to the regional director, for transmittal to the Director. The application shall specifically describe the proposed alternate method or procedure and shall set forth the reasons therefor. Alternate methods or procedures shall not be employed until the application has been approved by the Director. The permittee or licensee shall, during the period of authorization of an alternate method or procedure, comply with the terms of the approved application. Authorization of any alternate method or procedure may be withdrawn whenever, in the judgment of the Director, the effective administration of this part is hindered by the continuation of such authorization. As used in this paragraph, alternate methods or procedures shall include alternate construction or equipment.

(b) **Emergency variations from requirements.** The Director may approve construction, equipment, and methods of operation other than as specified in this part, where he finds that an emergency exists and the proposed variations from the specified requirements are necessary and the proposed variations—

(1) Will afford security and protection that are substantially equivalent to those prescribed in this part;

(2) Will not hinder the effective administration of this part; and

(3) Will not be contrary to any provisions of law.

Variations from requirements granted under this paragraph are conditioned on compliance with the procedures, conditions, and limitations set forth in the approval of the application. Failure to comply in good faith with such procedures, conditions, and limitations shall automatically terminate the authority for such variations and the licensee or permittee thereupon shall fully comply with the prescribed requirements of regulations from which the variations were authorized. Authority for any variation may be withdrawn whenever, in the judgment of the Director, the effective administration of this part is hindered by the continuation of such variation. Where the licensee or permittee desires to employ such variation, he shall submit a written application, in triplicate, to the regional director, for transmittal to the Director. The application shall describe the proposed variation and set forth the reasons therefor. Variations shall not be employed until the application has been approved, except when the emergency requires immediate action to correct a situation that is threatening to life or property. Such corrective action may then be taken concurrent with the filing of the application and notification of the Director via telephone.

(c) **Retention of approved variations.** The licensee or permittee shall retain, as part of his records available for examination by alcohol, tobacco and firearms officers, any application approved by the Director under the provisions of this section.

Section 181.23 Explosives list.

The Director shall compile and publish in the Federal Register an Explosives List. This list shall be published and revised at least annually.

Section 181.24 Right of entry and examination.

Any internal revenue officer may enter during business hours the premises, including places of storage, of any licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee for the purpose of inspecting or examining any records or documents required to be kept by such importer, manufacturer, dealer, or permittee under this part, and any explosive materials kept or stored by such importer, manufacturer, dealer, or permittee at such premises.

Section 181.25 Disclosure of information.

Upon receipt of written request of any State or any political subdivision thereof, the Assistant Regional Commissioner may make available to such State or any political subdivision thereof, any information which the Assistant Regional Commissioner may obtain by reason of the provisions of the Act with respect to the identification of persons within such State or political subdivision thereof, who have purchased or received explosive materials, together with a description of such explosive materials.

Section 181.26 Prohibited shipment, transportation, or receipt of explosive materials.

(a) No person, other than a licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee, shall transport, ship, cause to be transported, or receive in interstate or foreign commerce any explosive materials: *Provided*, That the provisions of this paragraph shall not apply to

(1) The transportation, shipment, or receipt of explosive materials by a nonlicensed person or nonpermittee who lawfully purchases explosive materials from a licensee in a State contiguous to the purchaser's State of residence if, (i) the purchaser's State of residence has enacted legislation, currently in force, specifically authorizing a resident of that State to purchase explosive materials in a contiguous State, (ii) the provisions of 181.105(c) are fully complied with, and (iii) the purchaser is not otherwise prohibited under paragraph (b) of this section from shipping or transporting explosive materials in interstate or foreign commerce or receiving explosive materials which have been shipped or transported in interstate or foreign commerce; or

(2) The lawful purchase by a nonlicensee or nonpermittee of commercially manufactured black powder in quantities not to exceed fifty pounds. if (i) the black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices, and (ii) the provisions of 181.105(g) are fully complied with.

(b) No person may ship or transport any explosive material in interstate or foreign

commerce or receive any explosive materials which have been shipped or transported in interstate or foreign commerce who (1) is under indictment for, or who has been convicted in any court of, a crime punishable by imprisonment for a term exceeding 1 year, (2) is a fugitive from justice, (3) is an unlawful user of or addicted to marihuana (as defined in section 4761 of the Internal Revenue Code of 1954; 26 U.S.C. 4761) or any depressant or stimulant drug (as defined in section 201(v) of the Federal Food, Drug, and Cosmetic Act; 21 U.S.C. 321(v)), or narcotic drug (as defined in section 4731(a) of the Internal Revenue Code of 1954; 26 U.S.C. 4731(a)), or (4) has been adjudicated as a mental defective or has been committed to a mental institution.

Section 181.27 Out-of-State disposition of explosive materials.

No nonlicensee or nonpermittee shall distribute any explosive materials to any other nonlicensee or nonpermittee who the distributor knows or has reasonable cause to believe does not reside in the State in which the distributor resides.

Section 181.28 Stolen explosive materials.

No person shall receive, conceal, transport, ship, store, barter, sell, or dispose of any stolen explosive materials knowing or having reasonable cause to believe that the explosive materials were stolen.

Section 181.29 Unlawful storage.

No person shall store any explosive materials in a manner not in conformity with the provisions of Subpart J.

Section 181.30 Reporting theft or loss of explosive materials.

Any licensee or permittee who has knowledge of the theft or loss of any explosive materials from his stock shall, within 24 hours of discovery thereof, report such theft or loss by telephone to the nearest ATF office and on Form 4712 in accordance with the instructions on the form. Theft or loss of any explosive materials shall also be reported to appropriate local authorities. Any other person who has knowledge of the theft or loss of any explosive materials from his stock shall, within 24 hours of discovery thereof, report such theft or loss by telephone and in writing to the nearest ATF office. Such theft or loss shall also be reported to appropriate local authorities.

Section 181.31 Inspection of site of accidents or fires; right of entry.

Any internal revenue officer may inspect the site of any accident or fire in which there is reason to believe that explosive materials were involved. Any internal revenue officer may enter into or upon any property where explosive materials have been used, are suspected of having been used, or have been found in an otherwise unauthorized location.

Subpart D—Licenses and Permits

Section 181.41 General.

(a) Each person intending to engage in business as an importer or manufacturer of, or a dealer in, explosive materials including black powder, shall, before commencing such business, obtain the license required by this subpart for the business to be operated. Each person who intends to acquire for use explosive materials from a licensee in a State other than the State in which he resides, or from a foreign country, or who intends to transport explosive materials in interstate or foreign commerce, shall obtain a permit under the provisions of this subpart: *Provided,* That it is not necessary to obtain such permit if the user intends to lawfully purchase—

(1) Explosive materials from a licensee, in a State contiguous to the user's State of residence and the user's State of residence has enacted legislation, currently in force, specifically authorizing a resident of that State to purchase explosive materials in a contiguous State, or

(2) Commercially manufactured black powder in quantities not to exceed fifty pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices.

(b) Each person intending to engage in business as an explosive materials importer, manufacturer, or dealer shall file an application, with the required fee (see Section 181.42), with the Service Center Director for the internal revenue district in which his business premises are to be located. A separate license must be obtained for each business premises at which the applicant is to manufacture, import, or distribute explosive materials: *Provided,* That a separate license shall not be required for storage facilities operated by the

licensee as an integral part of one business premises or to cover a location used by the licensee solely for maintaining the records required by this part: *Provided further,* That a separate license shall not be required of a licensed manufacturer with respect to his on site manufacturing. A license shall, subject to the provisions of law, entitle the licensee to transport, ship, and receive explosive materials in interstate or foreign commerce, and to engage in the business specified by the license, at the location described on the license (and in the case of a licensed manufacturer, on site within the same internal revenue region), for the period stated on the license: *Provided,* That it shall not be necessary for a licensed importer or a licensed manufacturer (for purposes of sale or distribution) to also obtain a dealer's license in order to engage in business on his licensed premises as a dealer in explosive materials.

(c) Except as provided in paragraph (a) of this section, each person intending to acquire explosive materials from a licensee in a State other than a State in which he resides, or from a foreign country, or who intends to transport explosive materials in interstate or foreign commerce, shall file an application, with the required fee (see Section 181.43), with the Service Center Director for the internal revenue district in which is located his legal residence or principal place of business. A permit shall, subject to the provisions of the Act and other applicable provisions of law, entitle the permittee to acquire, transport, ship, and receive in interstate or foreign commerce explosive materials of the class authorized by his permit. Only one permit is required under the provisions of this part.

Section 181.42 License fees.

(a) Each applicant shall pay a fee for obtaining a license, a separate fee being required for each business premises, as follows:

(1) Manufacturer—$50.

(2) Manufacturer—limited (nonrenewable)—$5.

(3) Importer—$50.

(4) Dealer—$20.

(b) Each applicant for a renewal of a license shall pay a fee equal to one-half of the fee prescribed under paragraph (a).

Section 181.43 Permit fees.

(a) Each applicant shall pay a fee for obtaining a permit as follows:

(1) User—$20.

(2) User-limited (nonrenewable)—$2.

(b) Each applicant for a renewal or a user permit shall pay a fee of $10.

Section 181.44 License or permit fee not refundable.

No refund of any part of the amount paid as a license or permit fee shall be made where the operations of the licensee or permittee are, for any reason, discontinued during the period of an issued license or permit. However, the license or permit fee submitted with an application for a license or permit shall be refunded if that application is denied.

Section 181.45 Original license or permit.

(a) Any person who intends to engage in business as an explosive materials importer, manufacturer, or dealer, or who has not timely submitted application for renewal of a previous license issued under this part, shall file with the service center director for the internal revenue district in which the applicant is to do business an application, Form 4705, in duplicate. The application must be executed under the penalties of perjury and the penalties imposed by 18 U.S.C. 844(a). The application shall be accompanied by the appropriate fee in the form of (1) cash, or (2) money order or check made payable to the Internal Revenue Service. Forms 4705 may be obtained from any regional director or from any district director.

(b) Any person, except as provided in 181.41(a), who intends to acquire explosive materials from a licensee in a State other than the State in which he resides, or from a foreign country, or who intends to transport explosive materials in interstate or foreign commerce, or who has not timely submitted application for renewal of a previous permit issued under this part, shall file with the service center director for the internal revenue district in which is located his legal residence or principal place of business an application, Form 4707, in duplicate. The application must be executed under the penalties of perjury and the penalties imposed by 18 U.S.C. 844(a). The application shall be accompanied by the appropriate fee in the form of (1) cash, or (2) money order or check made payable to the Internal

Revenue Service. Forms 4707 may be obtained from any regional director or from any district director.

(c) Any person engaged in business or operations as a dealer in, or as an importer or manufacturer or user of, black powder requiring a license or permit under this part, and who was engaged in such business or operations on January 4, 1975, and who has filed an application for a license or permit under the provisions of this part prior to April 28, 1977, may continue such business or operations pending final action on his application.

181.46 Renewal of license or permit.

If a licensee or permittee intends to continue the business or operation described on a license or permit issued under this part after the expiration date of the license or permit, he shall, unless otherwise notified in writing by the Assistant Regional Commissioner, execute and file prior to the expiration of his license or permit an application for license renewal, Form 4706 (Part III), or an application for permit renewal, Form 4708 (Part III), accompanied by the required fee, with the Service Center Director for the internal revenue district in which the business premises are located, or in the case of a permittee, in which is located his legal residence or principal place of business: *Provided,* That a license issued to a manufacturer-limited is not renewable and is only valid for 30 days from date of issuance, and a user-limited permit is not renewable and is only valid for a single purchase transaction. All applications for manufacturer-limited licenses or user-limited permits must be filed on Form 4705 or Form 4707 in the manner required by Section 181.45. In the event the licensee or permittee does not timely file a renewal application, he must file an original application as required by Section 181.45, and obtain the required license or permit in order to continue business or operations. If a licensee or permittee does not timely receive renewal application forms through the mails, he should so notify his Assistant Regional Commissioner.

Section 181.47 Procedure by Service Center Director.

Upon receipt of an application for an original license or an original permit or an application for renewal of a license or renewal of a permit, the Service Center Director shall deposit the fee accompanying the license or permit application and forward the application to the Assistant Regional Commissioner. Where an application is filed with an insufficient fee, the application and any fee submitted shall be returned.

Section 181.48 Abandoned application.

Upon receipt of an incomplete or improperly executed application, the applicant shall be notified of the deficiency in the application. If the application is not corrected and returned within 30 days following the date of notification, the application shall be considered as having been abandoned and the license or permit fee returned.

Section 181.49 Issuance of license or permit.

(a) Upon receipt of a properly executed application for a license or permit, the Assistant Regional Commissioner shall, upon finding through further inquiry or investigation, or otherwise, that the applicant is entitled thereto, issue the appropriate license or permit and a copy thereof: *Provided,* That in the case of a user-limited permit, the original only shall be issued. Each license or permit shall bear a serial number and such number may be assigned to the licensee or permittee to whom issued for as long as he maintains continuity or renewal in the same internal revenue region.

(b) The Assistant Regional Commissioner shall approve a properly executed application for license or permit, if:

(1) The applicant is 21 years of age or over;

(2) The applicant (including, in the case of a corporation, partnership, or association, any individual possessing, directly or indirectly, the power to direct or cause the direction of the management and policies of the corporation, partnership, or association) is not a person to whom distribution of explosive materials is prohibited under the provisions of the Act;

(3) The applicant has not willfully violated any of the provisions of the Act or this part;

(4) The applicant has not knowingly withheld information or has not made any false or fictitious statement intended or likely to deceive, in connection with his application;

(5) The applicant has in a State business premises from which he conducts business or operations subject to license or permit under the Act or from which he intends to conduct such business or operations;

(6) The applicant has storage facilities for the class of explosive materials described on

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the application which facilities meet the standards prescribed by Subpart J of this part, unless he establishes to the satisfaction of the Assistant Regional Commissioner that the business or operations to be conducted will not require the storage of explosive materials;

(7) The applicant has certified in writing that he is familiar with and understands all published State laws and local ordinances relating to explosive materials for the location in which he intends to do business; and

(8) The applicant for a license has submitted the certificate required by section 21 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1171(b)).

(c) The Assistant Regional Commissioner shall approve or deny an application for license or permit within the 45-day period beginning on the date a properly executed application was received by the Service Center Director: *Provided,* That when an applicant for license or permit renewal is a person who is, pursuant to the provisions of Section 181.83 or Section 181.142, conducting business or operations under a previously issued license or permit, action regarding the application will be held in abeyance pending the completion of the proceedings against the applicant's existing license or permit, or renewal application, or final action by the Commissioner on an application for relief submitted pursuant to Section 181.142, as the case may be.

Section 181.50 Correction of error on license or permit.

(a) Upon receipt of a license or permit issued under the provisions of this part, each licensee or permittee shall examine same to insure that the information contained thereon is accurate. If the license or permit is incorrect, the licensee or permittee shall return the license or permit to the Assistant Regional Commissioner with a statement showing the nature of the error. The Assistant Regional Commissioner shall correct the error, if the error was made in his office, and return the license or permit. However, if the error resulted from information contained in the licensee's or permittee's application for the license or permit, the Assistant Regional Commissioner shall require the licensee or permittee to file an amended application setting forth the correct information and a statement explaining the error contained in the application. Upon receipt of the amended application and a satisfactory explanation of the error, the Assistant Regional Commissioner shall make the correction on the license or permit and return the same to the licensee or permittee.

(b) When the Assistant Regional Commissioner finds through any means other than notice from the licensee or permittee that an incorrect license or permit has been issued, (1) the Assistant Regional Commissioner may require the holder of the incorrect license or permit to return the license or permit for correction, and (2) if the error resulted from information contained in the licensee's or permittee's application for the license or permit, the Assistant Regional Commissioner shall require the licensee or permittee to file an amended application setting forth the correct information, and a statement satisfactorily explaining the error contained in the application. The Assistant Regional Commissioner then shall make the correction on the license or permit and return same to the licensee or permittee.

Section 181.51 Duration of license or permit.

Licenses and permits shall be issued for a period of 1 year; *Provided,* That a manufacturer-limited license shall be issued for a period of 30 days and a user-limited permit shall be valid only for a single purchase transaction.

Section 181.52 Limitations on license or permit.

(a) The license covers the business and class of explosive materials specified in the license at the licensee's business premises (see Section 181.41(b)).

(b) The permit is valid with respect to the type of operations and class of explosive materials specified in the permit.

Section 181.53 License and permit not transferable.

Licenses and permits issued under this part are not transferable to another person. In the event of the lease, sale, or other transfer of the business or operations covered by the license or permit, the successor must obtain the license or permit required by this part prior to commencing such business or operations. However, for rules on right of succession, see Section 181.59.

Section 181.54 Change of location; change in construction.

(a) **Other than storage facilities.** Except as provided in paragraph (b), a licensee or permittee may during the term of his license or

permit remove his business or operations to a new location at which he intends regularly to carry on such business or operations, without procuring a new license or permit. However, in every case, whether or not the removal is from one internal revenue region to another, notification of the new location of the business or operations must be given not less than 10 days prior to such removal to the Assistant Regional Commissioner for the internal revenue region from which or within which the removal is to be made, and the Assistant Regional Commissioner for the internal revenue region to which the removal is to be made. In each instance, the license or permit and any copies thereof furnished with the license or permit must be submitted for endorsement to the Assistant Regional Commissioner having jurisdiction over the internal revenue region to which or within which removal is to be made. After endorsement of the license or permit and the copies thereof to show the new location, and the new license or permit number, if any, the Assistant Regional Commissioner will return same to the licensee or permittee.

(b) Storage facilities. A licensee or permittee who intends to change the location of his approved storage facility described in his application (other than a change of location of a portable approved storage facility) during the term of his license or permit shall make written application, in duplicate, to the Assistant Regional Commissioner who issued the license or permit, describing the location, the type of construction, and the class of explosive materials as prescribed in Subpart J. Such application may include a request for approval of specific successive changes in location of an approved storage facility. Storage of explosive materials may not be commenced at the new location prior to receipt of the copy of such application stamped "Approved."

(c) Additions to or changes in storage facilities. A licensee or permittee who intends to make additions to or changes in construction of approved storage facilities described in his application, shall file an application on Form 4705 or on Form 4707 with the Assistant Regional Commissioner for an amended license or permit, describing the proposed additions or changes. Additions to or changes in construction of approved storage facilities may not be made prior to issuance of the amended license or permit. Upon receipt of the amended license or amended permit, the licensee or permittee shall submit his superseded license or superseded permit and any copies thereof to the Assistant Regional Commissioner.

Section 181.55 Change in class of explosive materials.

A licensee or permittee who intends to change the class of explosive materials described in his license or permit from a lower to a higher classification (see Subpart J) shall file an application on Form 4705 or on Form 4707 with the Assistant Regional Commissioner for an amended license or permit. If the change in class or explosive materials would require a change in storage facilities, the amended application shall include a description of the type of construction as prescribed in Subpart J. Business or operations with respect to the new class of explosive materials may not be commenced prior to issuance of the amended license or amended permit. Upon receipt of the amended license or amended permit, the licensee or permittee shall submit his superseded license or superseded permit and any copies thereof to the Assistant Regional Commissioner.

Section 181.56 Change in trade name.

A licensee or permittee continuing to conduct business or operations at the location shown on his license or permit is not required to obtain a new license or permit by reason of a mere change in trade name under which he conducts his business or operations: *Provided*, That such licensee or permittee furnishes his license or permit and any copies thereof for endorsement of such change to the Assistant Regional Commissioner for the internal revenue region in which the licensee or permittee conducts his business or operations, within 30 days from the date the licensee or permittee begins his business or operations under the new trade name.

Section 181.57 Change of control.

In the case of a corporation or association holding a license or permit under this part, if actual or legal control of the corporation or association changes, directly or indirectly, whether by reason of change in stock ownership or control (in the corporation holding a license or permit or in any other corporation), by operation of law, or in any other manner, the licensee or permittee shall, within 30 days of such change, give written notification thereof executed under the penalties of perjury, to

the Assistant Regional Commissioner. Upon expiration of the license or permit, the corporation or association must file a Form 4705 or a Form 4707 as required by Section 181.45 and pay the fee prescribed in Section 181.42(b) or Section 181.43 (b).

Section 181.58 Continuing partnerships.

Where, under the laws of the particular State, the partnership is not terminated on death or insolvency of a partner, but continues until the winding up of the partnership affairs is completed, and the surviving partner has the exclusive right to the control and possession of the partnership assets for the purpose of liquidation and settlement, such surviving partner may continue to conduct the business or operations under the license or permit of the partnership. If such surviving partner acquires the business or operations on completion of settlement of the partnership, he shall obtain a license or permit in his own name from the date of acquisition, as provided in Section 181.45. The rule set forth in this section shall also apply where there is more than one surviving partner.

Section 181.59 Right of succession by certain persons.

(a) Certain persons other than the licensee or permittee may secure the right to carry on the same explosive materials business or operations at the same business premises for the remainder of the term of license or permit. Such persons are:

(1) The surviving spouse or child, or executor, administrator, or other legal representative of a deceased licensee or permittee; and

(2) A receiver or trustee in bankruptcy, or an assignee for benefit of creditors.

(b) In order to secure the right provided by this section, the person or persons continuing the business or operations shall furnish the license or permit and copies thereof for that business or operations for endorsement of such succession to the Assistant Regional Commissioner for the internal revenue region in which the business or operations is conducted within 30 days from the date on which the successor begins to carry on the business or operations.

Section 181.60 Certain continuances of business or operations.

A licensee or permittee who furnishes his license or permit to the Assistant Regional Commissioner for correction, amendment or endorsement in compliance with the provisions contained in this subpart may continue his business or operations while awaiting its return.

Section 181.61 Discontinuance of business or operations.

Where an explosive materials business or operations is either discontinued or succeeded by a new owner, the owner of the business or operations discontinued or succeeded shall within 30 days thereof furnish to the Assistant Regional Commissioner for the internal revenue region in which his business or operations was located notification of the discontinuance or succession and his license or permit and any copies thereof. (See also Section 181.128.)

Section 181.62 State or other law.

A license or permit issued under this part confers no right or privilege to conduct business or operations, including storage, contrary to State or other law. The holder of such a license or permit is not by reason of the rights and privileges granted by that license or permit immune from punishment for conducting an explosive materials business or operations in violation of the provisions of any State or other law. Similarly, compliance with the provisions of any State or other law affords no immunity under Federal law or regulations.

Subpart E—License and Permit Proceedings

Section 181.71 Opportunity for compliance.

Except in cases of wilfulness or those in which the public interest requires otherwise, and the Assistant Regional Commissioner so alleges in the notice of denial of an application or revocation of a license or permit, no license or permit shall be revoked or renewal application denied without first calling to the attention of the licensee or permittee the reasons for the contemplated action and affording him an opportunity to demonstrate or achieve compliance with all lawful requirements and to submit facts, arguments, or proposals of adjustments. The notice of contemplated action, Form 4715, shall afford the licensee or permittee 15 days from the date of receipt of

the notice to respond. If no response is received within the 15 days or after consideration of relevant matters presented by the licensee or permittee, the Assistant Regional Commissioner finds that the licensee or permittee is not likely to abide by the law and regulations, he will proceed as provided in Section 181.74.

Section 181.72 Denial of initial application.

Whenever the Assistant Regional Commissioner has reason to believe that an applicant for an original license or permit is not eligible to receive a license or permit under the provisions of Section 181.49, he shall issue a notice of denial on Form 4716. The notice shall set forth the matters of fact and law relied upon in determining that the application should be denied, and shall afford the applicant 15 days from the date of receipt of the notice in which to request a hearing to review the denial. If no request for a hearing is filed within that time, a copy of the applications, marked "Disapproved," will be returned to the applicant.

Section 181.73 Hearing after initial application is denied.

If the applicant for an original license or permit desires a hearing, he shall file a request therefor, in duplicate, with the Assistant Regional Commissioner, within 15 days after receipt of the notice of denial. The request should include a statement of the reasons therefor. On receipt of the request, the Assistant Regional Commissioner shall refer the matter to a hearing examiner and the examiner shall set a time and place (see Section 181.77) for a hearing and shall serve notice thereof upon the applicant and the Assistant Regional Commissioner at least 10 days in advance of the hearing date. The hearing shall be conducted in accordance with the hearing procedures prescribed in Part 200 of this chapter (see Section 181.82). Within a reasonable time after the conclusion of the hearing, and as expeditiously as possible, the examiner shall render his recommended decision. He shall certify to the complete record of the proceedings before him and shall immediately forward the complete certified record, together with four copies of his recommended decision, to the Assistant Regional Commissioner for decision.

Section 181.74 Denial of renewal application or revocation of license or permit.

If, following or without opportunity for compliance under Section 181.71, as circumstances warrant, the Assistant Regional Commissioner finds that the licensee or permittee is not likely to comply with the law or regulations or is otherwise not eligible to continue operations authorized under his license or permit, the Assistant Regional Commissioner will issue a notice of denial of the renewal application or revocation of the license or permit, Form 4716 or 4717, as appropriate. In either case, the notice shall set forth the matters of fact constituting the violations specified, dates, places, and the sections of law and regulations violated. The notice shall, in the case of revocation of a license or permit, specify the date on which such action is effective, which date shall be on or after the date the notice is served on the licensee or permittee. The notice shall also advise the licensee or permittee that he may, within 15 days after receipt of the notice, request a hearing and, if applicable, a stay of the effective date of the revocation of his license or permit.

Section 181.75 Hearing after denial of renewal application or revocation of license or permit.

If a licensee or permittee whose renewal application has been denied or whose license or permit has been revoked desires a hearing, he shall file a request therefor, in duplicate, with the Assistant Regional Commissioner. In the case of the revocation of a license or permit, he may include a request for a stay of the effective date of the revocation. On receipt of the request the Assistant Regional Commissioner shall advise the licensee or permittee whether the stay of the effective date of the revocation is granted. If the stay of the effective date of the revocation is granted, the Assistant Regional Commissioner shall refer the matter to a hearing examiner. The hearing examiner shall set a time and place (see Section 181.77) for a hearing and shall serve notice thereof upon the licensee or permittee and the Assistant Regional Commissioner at least 10 days in advance of the hearing date. If the stay of the effective date of the revocation is denied, the licensee or permittee may request an immediate hearing. In such event, the Assistant Regional Commissioner shall immediately refer the matter to a hearing examiner who shall set a date and place for a hearing, which date shall be no later than 10 days from the date the licensee or permittee requested an immediate hearing. The hearing shall be

held in accordance with the applicable provisions of Part 200 of this chapter. Within a reasonable time after the conclusion of the hearing, and as expeditiously as possible, the hearing examiner shall render his decision. He shall certify to the complete record of the proceeding before him and shall immediately forward the complete certified record, together with two copies of his decision, to the Assistant Regional Commissioner, serve one copy of his decision on the licensee or permittee or his counsel, and transmit a copy to the attorney for the Government.

Section 181.76 Action by Assistant Regional Commissioner.

(a) **Initial application proceedings.** If, upon receipt of the record and the recommended decision of the examiner, the Assistant Regional Commissioner decides that the license or permit should be issued, he shall approve the application, briefly stating, for the record, his reasons therefor. If he contemplates that the denial should stand, he shall serve a copy of the examiner's recommended decision on the applicant, informing the applicant of his contemplated action and affording the applicant not more than 10 days in which to submit proposed findings and conclusions or exceptions to the recommended decision with reasons in support thereof. If the Assistant Regional Commissioner, after consideration of the record of the hearing and of any proposed findings, conclusions, or exceptions filed with him by the applicant, approves the findings, conclusions and recommended decision of the examiner, he shall issue the license or permit or disapprove the application in accordance therewith. If he disapproves of the findings, conclusions, and recommendation of the examiner, in whole or in part, he shall by order make such findings and conclusions as in his opinion are warranted by the law and the facts in the record. Any decision of the Assistant Regional Commissioner ordering the disapproval of an initial application for a license or permit shall state the findings and conclusions upon which it is based, including his ruling upon each proposed finding, conclusion, and exception to the examiner's recommended decision, together with a statement of his findings and conclusions, and reasons or basis therefor, upon all material issues of fact, law or discretion presented on the record. A signed duplicate original of the decision shall be served upon the applicant and the original copy containing certificate of service shall be placed in the official record of the proceedings. If the decision of the Assistant Regional Commissioner is in favor of the applicant, he will issue the license or permit, to be effective on issuance.

(b) **Renewal application and revocation proceedings.** Upon receipt of the complete certified records of the hearing, the Assistant Regional Commissioner shall enter an order confirming the revocation of the license or permit, or disapproving the application, in accordance with the examiner's findings and decision, unless he disagrees with the findings and decision. A signed duplicate original of the order, Form 4718, shall be served upon the licensee or permittee and the original copy containing certificate of service shall be placed in the official record of the proceedings. If the Assistant Regional Commissioner disagrees with the findings and decision of the examiner, he shall file a petition with the Director for review thereof as provided in Section 181.79. In either case, if the renewal application denial is sustained a copy of the application marked "Disapproved" will be returned to the applicant. If the renewal application denial is reversed a license or permit will be issued to become effective on expiration of the license or permit being renewed, or on the date of issuance, whichever is later. If the proceedings involve the revocation of a license or permit which expired before a decision is in favor of the licensee or permittee, the Assistant Regional Commissioner shall:

(1) If renewal application was timely filed and a stay of the effective date of the revocation was granted, issue a license or permit effective on the date of issuance;

(2) If renewal application was not timely filed but a stay of the effective date of the revocation had been granted, request that a renewal application be filed and, pursuant thereto, issue a license or permit to be effective on issuance; or

(3) If a stay of the effective date of the revocation had not been granted, request that an application be filed as provided in Section 181.45, and process it in the same manner as for an application for an original license or permit.

(c) **Curtailment of stay of revocation effective date.** If, after approval of a request for a stay of the effective date of an order revoking

a license or permit but before action are completed under this subpart, the Assistant Regional Commissioner finds that it is contrary to the public interest for the licensee or permittee to continue the operations or activities covered by his license or permit, the Assistant Regional Commissioner may issue a notice of withdrawal of such approval, effective on the date of issuance. Such notice shall be served upon the licensee or permittee in the manner provided in Section 181.81.

Section 181.77 Designated place of hearing.

The designated place of hearing set as provided in Section 181.73 or Section 181.75 shall be at the location convenient to the aggrieved party.

Section 181.78 Representation at a hearing.

An applicant, licensee or permittee may be represented by an attorney or other person recognized to practice before the Internal Revenue Service as provided in 31 CFR Part 10 (Treasury Department Circular No. 230) if he has otherwise complied with the applicable requirements or Sections 601.521-601.527 of this chapter. The Assistant Regional Commissioner may be represented in proceedings under Section 181.73 abd 181.75 by an attorney in the office of the regional counsel who is authorized to execute and file motions, briefs, and other papers in the proceedings, on behalf of the Assistant Regional Commissioner, in his own name as "Attorney for the Government."

Section 181.79 Appeal on petition to the Director.

An appeal to the Director is not required prior to filing an appeal with the U.S. Court of Appeals for judicial review. An appeal may be taken by the applicant, licensee, or permittee to the Director from a decision resulting from a hearing under Section 181.73 or Section 181.75. An appeal may also be taken by an Assistant Regional Commissioner from a decision resulting from a hearing under Section 181.75 as provided in Section 181.76(b). Such appeal shall be taken by filing a petition for review on appeal with the Director within 15 days of the service of an examiner's decision or an order. The petition shall set forth facts tending to show (a) action of an arbitrary nature, (b) action without reasonable warrant in fact, or (c) action contrary to law and regulations. A copy of the petition shall be filed with the Assistant Regional Commissioner or served on the applicant, licensee, or permittee, as the case may be. In the event of such appeal, the Assistant Regional Commissioner shall immediately forward the complete original record, by certified mail, to the Director for his consideration, review, and disposition in the manner provided in Subpart I of Part 200 of this chapter. When, on appeal, the Director affirms the initial decision of the Assistant Regional Commissioner or the examiner, as the case may be, such initial decision shall be final.

Section 181.80 Court review.

An applicant, licensee, or permittee may, within 60 days after receipt of the decision of the examiner or the final order of the Assistant Regional Commissioner or the Director, file a petition for a judicial review thereof, with the U.S. Court of Appeals for the district in which he resides or has his principal place of business. The Director, upon notification that such petition has been filed, shall have prepared, in triplicate, a complete transcript of the record of the proceedings. The Assistant Regional Commissioner or the Director, as the case may be, will certify to the correctness of such transcript of the record, forward one copy to the attorney for the Government in the review of the case, and file the original record of the proceedings with the original certificate in the U.S. Court of Appeals.

Section 181.81 Service on applicant, licensee, or permittee.

All notices and other formal documents required to be served on an applicant, licensee, or permittee under this subpart shall be served by certified mail or by personal delivery. Where service is by personal delivery, the signed duplicate original copy of the formal document shall be delivered to the applicant, licensee, or permittee, or, in the case of a corporation, partnership, or association, by delivering it to an officer, manager, or general agent thereof, or to its attorney of record.

Section 181.82 Provisions of Part 200 made applicable.

The provisions of Subpart G of Part 200 of this chapter, as well as those provisions of Part 200 relative to failure to appear, withdrawal of an application or surrender of a permit, the conduct of hearings before a hearing examiner, and record of testimony are hereby made applicable to application, license,

and permit proceedings under this subpart to the extent that they are not contrary to or incompatible with the provisions of this subpart.

Section 181.83 Operations by licensees or permittees after notice of denial or revocation.

In any case where a notice of revocation has been issued and a request for a stay of the effective date of the revocation has not been granted, the licensee or permittee may not engage in the activities covered by the license or permit pending the outcome of proceedings under this subpart. In any case where notice of revocation has been issued but a stay of the effective date of the revocation has been granted, the licensee or permittee may continue to engage in the activities covered by his license or permit unless or until formally notified to the contrary: *Provided*, That in the event the license or permit would have expired before proceedings under this subpart are completed, timely renewal application must have been filed to continue the license or permit beyond its expiration date. In any case where a notice of denial of a renewal application has been issued, the licensee or permittee may continue to engage in the activities covered by the existing license or permit after the date of expiration thereof until proceedings under this subpart are completed.

Subpart F—Conduct of Business or Operations

Section 181.101 Posting of license or permit.

Licenses or permits issued under this part or copies thereof shall be kept posted and kept available for inspection on the business premises at each place where explosive materials are manufactured, imported, or distributed and in each magazine of an approved storage facility.

Section 181.102 Authorized operations by permittees and certain licensees.

(a) **In general.** The license issued to a manufacturer-limited does not authorize such licensee to engage in another class of business required to be licensed under the Act or this part. Therefore if such licensee intends to manufacture explosive materials for purposes of sale or distribution or to deal in explosive materials, he shall so qualify. Similarly, a permit issued under this part does not authorize the permittee to engage in the business of manufacturing, importing, or dealing in explosive materials. Accordingly if a permittee's operations bring him within the definition of a manufacturer, importer, or dealer under this part he shall qualify as such.

(b) **Distributions of surplus stocks.** Licensed manufacturers-limited and permittees are not authorized to engage in the business of sale or distribution of explosive materials. However, such licensees or permittees may dispose of surplus stocks of explosive materials to other licensees or permittees in accordance with the provisions of Section 181.103, and to nonlicensees or to nonpermittees in accordance with the provisions of Section 181.105(d).

Section 181.103 Sales or distributions between licensees or between licensees and permittees.

(a) A licensed importer, licensed manufacturer, or licensed dealer selling or otherwise distributing explosive materials to another licensee or permittee, or a permittee or a licensed manufacturer-limited disposing of surplus stock to another permittee or licensee, shall verify the identity and the status as a licensee or permittee of the distributee prior to making the transaction. Such verification shall be established by the distributee furnishing to the distributor a certified copy (in the case of a user-limited, the original) of the distributee's license or permit and by such other means as the distributor deems necessary: *Provided*, That it shall not be required (1) for a distributee who has furnished a certified copy of his license or permit to a distributor to again furnish such certified copy to that distributor during the term of the distributee's current license or permit, and (2) for the licensees or multilicensed business organizations to furnished certified copies of their licenses to other licensed locations operated by such organization: *Provided further*, That a multilicensed business organization may furnish to a distributor in lieu of a certified copy of each license, a list certified to be true, correct and complete, containing the name, address, license number, and the date of license expiration of each licensed location operated by such organization, and the distributor may sell or otherwise dispose of explosive materials as provided by this section to any licensee

appearing on such list without requiring a certified copy of a license there from. A distributor licensee who has the certified information required by this section may sell or distribute explosive materials to a licensee or permittee for not more than 45 days following the expiration date of the distributee's license or permit, unless the distributor knows or has reason to believe that the distributee's authority to continue business or operations under this part has been terminated.

(b) A licensed importer, licensed manufacturer, or licensed dealer selling or otherwise distributing explosive materials to another licensee or permittee, or a permittee or a licensed manufacturer-limited disposing of surplus stocks to another permittee or licensee, which is a business entity shall verify the identity of the representative or agent of the business entity who is authorized to acquire explosive materials on behalf of such business entity. Each business entity acquiring explosive materials shall furnish the licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee with a current certified list of representatives or agents authorized to acquire explosive materials on behalf of such business entity showing the name, address, and date and place of birth of each such representative or agent. A licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee shall not distribute explosive materials to a business entity on the order of a person who does not appear on such list.

(c) A licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee acquring explosive materials from another licensee or permittee shall furnish such licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee with a certified current statement of the intended use of the explosive materials by such licensee or permittee (such as resale, mining, quarrying, agriculture, construction, road building, oil well drilling, seismographic research, or other specified lawful activity) and specifying the name, address, date and place of birth, social security number of the distributee where the distributee is a natural person. In the case of a business entity such statement shall specify the intended use, taxpayer identification number, the identity and principal and local places of business of such business entity and the information required by paragraph (b) of this section. A licensee or permittee who has furnished such statement to a licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee shall not be required to again furnish such statement to that distributor if the information on the statement remains unchanged.

(d) Where possession of explosive materials is transferred at the distributor's premises, the distributor shall in all instances verify the identity of the person accepting possession on behalf of the distributee before relinquishing such possession. Prior to the delivery at the distributor's premises of explosive materials to an employee of a licensee or permittee, or to an employee of a carrier transporting explosive materials to a licensee or permittee, the distributor so delivering explosive materials shall obtain an executed Form 4721 from such employee before releasing the explosive materials. The form 4721 shall contain all of the information as indicated by the headings on the form and the instructions thereon or issued in respect thereto, and as required by this part.

(e) The user-limited permit issued under the provisions of this part is valid only for a single purchase transaction and is not renewable (see Section 181.51). Accordingly, each permittee holding a user-limited permit shall at the time he acquires explosive materials from a licensed importer, licensed manufacturer, or licensed dealer present his permit to such licensee. The licensed importer, licensed manufacturer, or licensed dealer shall write across the face of such permit "Transaction completed," the date, sign his name and indicate his license number, and return the permit to the permittee.

Section 181.104 Certified copy of license or permit.

Except as provided in Section 181.49(a), each person issued a license or permit under the provisions of this part shall be furnished together with his license or permit a copy thereof for his certification. If such a person desires an additional copy of his license or permit for certification and for use pursuant to Section 181.103, he shall:

(a) Make a reproduction of the copy of his license or permit and execute the certification thereon, or

(b) Make a reproduction of his license or permit, enter upon such reproduction the state-

ment: "I certify that this is a true copy of a *(insert the word license or permit)* issued to me to engage in the business or operations specified in Item 5" and sign his name adjacent thereto, or

(c) Submit a request, in writing, for certified copies of his license or permit to the Assistant Regional Commissioner for the Internal Revenue region in which the license or permit was issued. The request shall set forth the name, trade name (if any), and address of the licensee or permittee and the number of copies of the license or permit desired. There shall be imposed a fee of $1 for each copy of a license or permit issued by the Assistant Regional Commissioner under the provisions of this paragraph. Fee payment shall accompany each such request for additional copies of a license or permit. Such fee shall be paid by (1) cash, or (2) money order or check made payable to the Internal Revenue Service.

Section 181.105 Distributions to nonlicensees and nonpermittees.

(a) The provisions of this section shall apply in any case where distribution of explosive materials to the distributee is not otherwise prohibited by the Act or this part.

(b) Except as provided in Paragraph (c) of this section, a licensed importer, licensed manufacturer, or licensed dealer may distribute explosive materials to a nonlicensee or nonpermittee if the nonlicensee or nonpermittee is a resident of the same State in which the license's business premises are located, and the nonlicensee or nonpermittee furnishes to the licensee the explosives transaction record, Form 4710, required by Section 181.126. Disposition of Form 4710 shall be made in accordance with the provisions of Section 181.126 (c).

(c) A licensed importer, licensed manufacturer, or licensed dealer may sell or distribute explosive materials to a resident of a State contiguous to the State in which the licensee's place of business is located if the purchaser's State of residence has enacted legislation, currently in force, specifically authorizing a resident of that State to purchase explosive materials in a contiguous State and the purchaser and the licensee have, prior to the distribution of the explosive materials, complied with all the requirements of paragraphs (b) (e), and (f) of this section applicable to intrastate transactions occurring on the licensee's business premises.

(d) A licensed manufacturer-limited or a permittee may dispose of surplus stocks of explosive materials to a nonlicensee or nonpermittee if the nonlicensee or nonpermittee is a resident of the same State in which such licensee's or permittee's business premises or operations are located, or is a resident of a State contiguous to the State in which the licensee's or permittee's place of business or operations are located, and if the requirements of paragraphs (b), (c), (e), and (f) of this section are fully met.

(e) A licensed importer, licensed manufacturer, or licensed dealer selling or otherwise distributing explosive materials to a business entity shall verify the identity of the representative or agent of the business entity who is authorized to acquire explosive materials on behalf of such business entity. Each business entity acquiring explosive materials shall furnish the licensed importer, licensed manufacturer, or licensed dealer with a current certified list of the names of representatives or agents authorized to acquire explosive materials on behalf of such business entity. A licensed importer, licensed manufacturer, or licensed dealer shall not distribute explosive materials to a business entity on the order of a person whose name does not appear on such list.

(f) Where the possession of explosive materials is transferred at the distributor's premises, the distributor shall in all instances verify the identity of the person accepting possession on behalf of the distributee before relinquishing such possession. Prior to the delivery at the distributor's premises of explosive materials to an employee of a nonlicensee or nonpermittee, or to an employee of a carrier transporting explosive materials to a nonlicensee or nonpermittee, the distributor so delivering explosive materials shall obtain an executed Form 4721 from such employee before releasing the explosive materials. The Form 4721 shall contain all of the information as indicated by the headings on the form and the instructions thereon or issued in respect thereto, and as required by this part.

(g) Notwithstanding any other provision of this section, a licensed importer, licensed manufacturer, or licensed dealer, or a licensed manufacturer-limited or permittee disposing of surplus stocks, may sell or distribute com-

mercially manufactured black powder in quantities of fifty pounds or less to a nonlicensee or nonpermittee if:

(1) The black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices, and

(2) The nonlicensee or nonpermittee furnishes to the licensee the transaction record, Form 5400.3, required by Section 181.130.

Section 181.106 Certain prohibited distributions.

(a) A licensed importer, licensed manufacturer, licensed manufacturer-limited, or licensed dealer shall not distribute explosive materials to any person not licensed or holding a permit under this part, who the licensee knows or has reason to believe does not reside in the State in which the licensee's place of business is located: *Provided,* That the forgoing provisions of this paragraph shall not apply to:

(1) The distribution of explosive material to a resident of a State contiguous to the State in which the licensee's place of business is located, if the requirements of Section 181.105(c) are fully met, or

(2) The purchase of commercially manufactured black powder in quantities not to exceed fifty pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices, if the requirements of Section 181.105(g) are fully met.

(b) A licensed importer, licensed manufacturer, licensed manufacturer-limited, or licensed dealer shall not distribute any explosive materials to any person (1) who the importer, manufacturer, or dealer knows is less than 21 years of age, or (2) in any State where the purchase, possession, or use by such person of such explosive materials would be in violation of any State law or any published ordinance applicable at the place of distribution, or (3) who the importer, manufacturer, or dealer has reason to believe intends to transport such explosive materials into a State where the purchase, possession, or use of explosive materials is prohibited or which does not permit its residents to transport or ship explosive materials into such State or to receive explosive materials in such State, or (4) who the importer, manufacturer, or dealer has reasonable cause to believe intends to use such explosive materials for other than a lawful purpose.

(c) A licensed importer, licensed manufacturer, licensed manufacturer-limited, or licensed dealer shall not distribute any explosive materials to any person knowing or having reason to believe that such person (1) is, except as provided under Section 181.142(d) and (e), under indictment for, or has been convicted in any court of, a crime punishable by imprisonment for a term exceeding 1 year, (2) is a fugitive from justice, (3) is an unlawful user of marihuana (as defined in section 4761 of the Internal Revenue Code of 1954; 26 U.S.C. 4761) or any depressant or stimulant drug (as defined in section 201 (v) of the Federal Food, Drug, and Cosmetic Act; 21 U.S.C. 321 (v)), or narcotic drug (as defined in section 4731(a) of the Internal Revenue Code of 1954; 26 U.S.C. 4731(a)), or (4) has been adjudicated as a mental defective or has been committed to a mental institution.

Section 181.107 Record of transactions.

Every licensee and permittee shall maintain records of explosive materials in such form and manner as is prescribed by Subpart G of this part.

Section 181.108 Importation.

(a) Explosive materials imported or brought into the United States by a licensed importer or permittee may be released from customs custody to the licensed importer or permittee upon proof of his status as a licensed importer or permittee. Such status shall be established by the licensed importer or permittee furnishing to the customs officer a certified copy of his license or permit (see Section 181.104).

(b) A nonlicensee or nonpermittee may import or bring into the United States commercially manufactured black powder in quantities not to exceed fifty pounds. Upon submitting to the customs officer completed Form 5400.3, certifying that the black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices, black powder may be released from customs custody. The disposition of the executed Form 5400.3 shall be in accordance with the instructions on the form.

(c) The provisions of this section are in addition to, and are not in lieu of, any applicable requirement under 27 CFR Part 47.

Section 181.109 Identification of explosive materials.

Each licensed manufacturer of explosive materials shall legibly identify by marking all explosive materials he manufactures for sale or distribution. The marks required by this section shall identify the manufacturer and the location, date, and shift of manufacture. The licensed manufacturer shall place on each cartridge, bag, or other immediate container of explosive materials manufactured for sale or distribution the required mark which shall also be placed on the outside container, if any, used for their packaging: *Provided*, That with respect to explosive materials of small size not suitable for marking on the individual item (for example, blasting caps), it shall only be necessary to place such identification marks on the containers used for their packaging.

Subpart G—Records and Reports

Section 181.121 General.

(a) The records pertaining to explosive materials prescribed by this part shall be in permanent form, and shall be retained on the licensed or permit premises in the manner prescribed by this subpart for a period of not less than 5 years from the date the transaction occurs or until discontinuance of business or operations by the licensee or permittee. (See also Section 181.128.)

(b) Internal revenue officers may enter the premises of any licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee for the purpose of examining or inspecting any record or document required by or obtained under this part (see Section 181.24). Section 843(f) of the Act requires licensed importers, licensed manufacturers, licensed manufacturers-limited, licensed dealers, and permittees to make such records available for such examination or inspection at all reasonable times. Section 843(f) of the Act also requires licensed importers, licensed manufacturers, licensed manufacturers-limited, licensed dealers, and permittees to submit such reports and information with respect to such records and the contents thereof as the regulations contained in this part prescribe.

(c) Each licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, and permittee shall maintain such records of importation, production, shipment, receipt, sale, or other disposition, whether temporary or permanent, of explosive materials as the regulations contained in this part prescribe. Section 842(g) of the Act makes it unlawful for any licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee knowingly to make any false entry in any record required to be maintained pursuant to the Act and the regulations contained in this part.

Section 181.122 Records maintained by importers.

(a) Each licensed importer of explosive materials shall take true and accurate inventories which shall include all explosive materials on hand required to be accounted for in the records kept under this part. The licensed importer shall take such an inventory (1) at the time of commencing business, which shall be the effective date of the license issued upon original qualification under this part, or in the case of an importer of black powder who was not required to obtain a license under this part prior to January 4, 1975, such an inventory shall be taken as of April 28, 1977, or at the time of commencing business subsequent thereto; (2) at the time of changing the location of his premises to another region; (3) at the time of discontinuing business, and (4) at such other times as the regional director may in writing require. Each inventory shall be prepared in duplicate, the original of which shall be submitted to the regional director, and the duplicate shall be retained by the licensed importer. (See also Section 181.127.)

(b) Each licensed importer shall not later than the close of the next business day following the date of importation or other acquisition, record the quantity and class of explosive materials, as prescribed in the Explosives List, manufacturer, manufacturers' marks of identification (if any), and country of manufacture of explosive materials he imports or otherwise acquires, and the date such importation or other acquisition was made.

(c) A record of explosive materials distributed by a licensed importer to another licensee or permittee shall be maintained by the li-

censed importer on his licensed premises and shall show the quantity, class (as prescribed in the Explosives List), manufacturer, manufacturers' marks of identification (if any), country of manufacture, and license or permit number of the licensee or permittee to whom the explosive materials were distributed, and the date of the transaction. The information required by Section 181.103(b), (c) and (d) shall also be maintained as part of the records of the licensed importer. The information required by this paragraph shall be entered in the proper record book not later than the close of the next business day following the date of the transaction.

(d) Notwithstanding the provisions of paragraph (c) of this section, the Assistant Regional Commissioner may authorize alternate records to be maintained by a licensed importer to record his distribution of explosive materials when it is shown by the licensed importer that such alternate records will accurately and readily disclose the information required by paragraph (c) of this section. A licensed importer who proposes to use alternate records shall submit a letter application, in duplicate, to the Assistant Regional Commissioner and shall describe the proposed alternate records and the need therefor. Such alternate records shall not be employed by the licensed importer until approval in such regard is received from the Assistant Regional Commissioner.

(e) Each licensed importer shall maintain separate records of the sales or other distribution made of explosive materials to nonlicensees or nonpermittees. Such records shall be maintained in the form and manner as prescribed by Section 181.126.

(f) Each licensed importer shall maintain separate records of sales or other distribution made to nonlicensees or nonpermittees of commercially manufactured black powder in quantities not to exceed fifty pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices. Such records shall be maintained in the form and manner prescribed by Section 181.130.

Section 181.123 Records maintained by licensed manufacturers.

(a) Each licensed manufacturer shall take true and accurate inventories which shall include all explosive materials on hand required to be accounted for in the records kept under this part. The licensed manufacturer shall take such an inventory (1) at the time of commencing business, which shall be the effective date of the license issued upon original qualification under this part, or in the case of a manufacturer of black powder who was not required to obtain a license under this part prior to January 4, 1975, such an inventory shall be taken as of April 28, 1977, or at the time of commencing business subsequent thereto; (2) at the time of changing the location of his premises to another region; (3) at the time of discontinuing business; and (4) at such other times as the regional director may in writing require. Each inventory shall be prepared in duplicate, the original of which shall be submitted to the regional director, and the duplicate shall be retained by the licensed manufacturer. (See also Section 181.127.) (b) Each licensed manufacturer shall record the marks of identification (if any), the quantity and class of explosive materials, as prescribed in the Explosives List, he manufactures or otherwise acquires, and the date of such manufacture or acquisition. The information required by this paragraph shall be recorded not later than the close of the next business day following the date of such manufacture or acquisition.

(c)(1) A record of explosive materials distributed by a licensed manufacturer to another licensee or permittee shall be maintained by the licensed manufacturer on his licensed premises and shall show the marks of identification (if any), the quantity, class (as prescribed in the Explosives List), and manufacturer or importer, as applicable, if acquired other than by his manufacture, and license or permit number of the licensee or permittee to who the explosive materials were distributed, and the date of the transaction. The information required by Section 181.103(b), (c) and (d) shall also be maintained as part of the records of the licensed manufacturer. The information required by this paragraph shall be entered in the proper record book not later than the close of the next business day following the date of the transaction.

(2) Each licensed manufacturer who manufactures explosive materials for his own use shall record in a separate permanent record the quantity and class of explosive materials, as prescribed in the Explosives List, he daily uses and the date of such use. The information required by this subparagraph shall be record-

ed not later than the close of the next business day following the date of such use.

(d) Notwithstanding the provisions of paragraph (c) of this section, the Assistant Regional Commissioner may authorize alternate records to be maintained by a licensed manufacturer to record his distribution or use of explosive materials when it is shown by the licensed manufacturer that such alternate records will accurately and readily disclose the information required by paragraph (c) of this section. A licensed manufacturer who proposes to use alternate records shall submit a letter application, in duplicate, to the Assistant Regional Commissioner and shall describe the proposed alternate records and the need therefor. Such alternate records shall not be employed by the licensed manufacturer until approval in such regard is received from the Assistant Regional Commissioner.

(e) Each licensed manufacturer shall maintain separate records of the sales or other distributions made of explosive materials to nonlicensees or nonpermittees. Such records shall be maintained in the form and manner as prescribed by Section 181.126.

(f) Each licensed manufacturer shall maintain separate records of sales or other distribution made to nonlicensees or nonpermittees of commercial manufactured black powder in quantities not to exceed fifty pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices. Such records shall be maintained in the form and manner prescribed by Section 181.130.

Section 181.124 Records maintained by dealers.

(a) Each licensed dealer shall take true and accurate inventories which shall include all explosive materials on hand required to be accounted for in the records kept under this part. The licensed dealer shall take such an inventory (1) at the time of commencing business, which shall be the effective date of the license issued upon original qualification under this part, or in the case of a dealer in black powder who was not required to obtain a license under this part prior to January 4, 1975, such an inventory shall be taken as of April 28, 1977, or at the time of commencing business subsequent thereto; (2) at the time of changing the location of his premises to another region; (3) at the time of discontinuing business; and (4) at such other times as the regional director may in writing require. Each inventory shall be prepared in duplicate, the original of which shall be submitted to the regional director, and the duplicate shall be retained by the licensed dealer. (See also Section 181.127.)

(b) Each licensed dealer shall enter into a permanent record each purchase or other acquisition of explosive materials. The purchase or other acquisition of explosive materials by a licensed dealer shall, except as provided in paragraph (c) of this section, be recorded not later than the close of the next business day following the date of such purchase or acquisition. The record shall show the date of receipt, the name, address and license or permit number of the person from whom received, the name of the manufacturer and importer (if any), the manufacturers' marks of identification (if any), and the quantity and class of explosive materials as prescribed in the Explosives List.

(c) When a commercial record is maintained by a licensed dealer showing his purchase or acquisition of explosive materials, and such record contains all acquisition information required by the permanent record prescribed by paragraph (b) of this section, the licensed dealer acquiring such explosive materials may, for a period not exceeding 7 days following the date of such acquisition, delay making the required entry into such permanent record: *Provided,* That the commercial record is, until such time as the required entry into the permanent record is made, (1) maintained by the licensed dealer separate from other commercial documents maintained by such licensee, and (2) readily available for inspection on the licensed premises.

(d) A permanent record of explosive materials sold or otherwise distributed by a licensed dealer to another licensee or permittee shall be maintained by the licensed dealer on his licensed premises and shall show the quantity, class of explosive materials, as prescribed in the Explosives List, the name of the manufacturer and importer (if any), the manufacturers' marks of identification (if any), the license or permit number of the licensee or permittee to whom the explosive materials were distributed, and the date of the transaction. The information required by Section 181.103(b), (c) and (d) shall also be maintained as part of the records of the licensed dealer. The information required by this paragraph shall be entered in the permanent record in the manner required in paragraphs (b) and (c)

of this section with respect to acquisition of explosive materials.

(e) Notwithstanding the provisions of paragraphs (b) and (d) of this section, the Assistant Regional Commissioner may authorize alternate records to be maintained by a licensed dealer to record his acquisition or disposition of explosive materials, when it is shown by the licensed dealer that such alternate records will accurately and readily disclose the required information. A licensed dealer who proposes to use alternate records shall submit a letter application, in duplicate, to the Assistant Regional Commissioner and shall describe the proposed alternate records and the need therefor. Such alternate records shall not be employed by the licensed dealer until approval in such regard is received from the Assistant Regional Commissioner.

(f) Each licensed dealer shall maintain separate records of the sales or other distributions made of explosive materials to nonlicensees or nonpermittees. Such records shall be maintained in the form and manner as prescribed by Section 181.126.

(g) Each licensed dealer shall maintain separate records of the sales or other distribution made to nonlicensees or nonpermittees of commercially manufactured black powder in quantities not to exceed fifty pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices. Such records shall be maintained in the form and manner prescribed by Section 181.130.

Section 181.125 Records maintained by licensed manufacturers-limited and permittees.

(a) Each licensed manufacturer-limited and each permittee shall take true and accurate inventories which shall include all explosive materials on hand required to be accounted for in the records kept under this part. Such inventory shall be made (1) at the time of commencing business, which shall be the effective date of the license or permit issued upon original qualification under this part, or in the case of a manufacturer-limited of black powder or a permittee using black powder who was not required to obtain a license or permit under this part prior to January 4, 1975, such an inventory shall be taken as of April 28, 1977, or at the time of commencing business subsequent thereto; (2) at the time of changing the location of his premises to another region; (3) at the time of discontinuing business; and (4) at such other times as the regional director may in writing require. Each inventory shall be prepared in duplicate, the original of which shall be submitted to the regional director, and the duplicate shall be retained by the licensee or permittee. (See also Section 181.127.)

(b) A licensed manufacturer-limited disposing of surplus stocks of explosive materials to other licensees or to permittees shall record in the permanent record not later than the close of the next business day following the date of the disposition, the information prescribed in Section 181.123(c)(1). Each licensed manufacturer-limited shall maintain separate records of dispositions of surplus stocks of explosive materials to nonlicensees or nonpermittees. Such records shall be maintained in the form and manner as prescribed by Section 181.126. Each licensed manufacturer-limited shall maintain separate records of dispositions of surplus stocks of commercially manufactured black powder in quantities not to exceed fifty pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices. Such records shall be maintained in the form and manner prescribed by Section 181.130.

(c) Each permittee shall record in a permanent record the manufacturers' marks of identification (if any), the quantity and class of explosive materials, as prescribed in the Explosives List, he daily acquires, the date of such acquisition, and the name, address and license number of the person from whom explosive materials were obtained. The information required by this paragraph shall be recorded not later than the close of the next business day following the date of such acquisition. A permittee disposing of surplus stocks of explosive materials to other permittees or to licensees shall record in the permanent record not later than the close of the next business day following the date of the disposition, the information prescribed in Section 181.124(d). Each permittee shall maintain separate records of dispositions of surplus stocks of explosive materials to nonlicensees or nonpermittees. Such records shall be maintained in the form and manner as prescribed by Section 181.126. Each permittee shall maintain separate records of dispositions of surplus stocks of commercially manufactured black powder in quantities not to exceed fifty pounds, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices. Such records shall be maintained in the form and manner as prescribed by Section 181.130.

(d) Notwithstanding the provisions of paragraph (c) of this section, the Assistant Regional Commissioner may authorize alternate records to be maintained by a permittee to record his acquisition of explosive materials, when it is shown by the permittee that such alternate records will accurately and readily disclose the required information. A permittee who proposes to use alternate records shall submit a letter application, in duplicate, to the Assistant Regional Commissioner and shall describe the proposed alternate records and the need therefor. Such alternate records shall not be employed by the permittee until approval in such regard is received from the Assistant Regional Commissioner.

Section 181.126 Explosives transaction record.

(a) A licensee or permittee shall not sell or otherwise distribute, temporarily or permanently, explosive materials to any person, other than another licensee or permittee, unless he records the transaction on an explosives transaction record, Form 4710.

(b) Prior to the sale or other distribution of explosive materials to a nonlicensee or nonpermittee who is a resident of the State in which the licensee or permittee maintains his business premises or who is not a resident of the State in which the licensee or permittee maintains his business premises and such nonlicensee or nonpermittee is acquiring explosive materials under the provisions contained in Section 181.105(c), the licensee or permittee so distributing the explosive materials shall obtain an executed Form 4710 from the distributee. The Form 4710 shall contain all of the information as indicated by the headings on the form and the instructions thereon or issued in respect thereto, and as required by this part.

(c) Form 4710 shall be completed in duplicate, the original of which shall be retained by the licensee or permittee as part of his permanent records in accordance with the requirements in paragraph (d) of this section, and the copy shall be forwarded in accordance with the instructions on the form, on or before the close of business on the business day next succeeding that on which the transaction occurs.

(d) Each original Form 4710 shall be retained in numerical (by transaction serial number) order commencing with "1" and continuing in regular sequence. When the numbering of any series reaches "1,000,000," the licensee or permittee may recommence the series. The recommenced series shall be given an alphabetical prefix or suffix. Where there is a change in proprietorship, or in the individual, firm, corporate name or trade name, the series in use at the time of such change may be continued.

(e) The requirements of this section shall be in addition to any other record-keeping requirement contained in this part.

(f) A licensee or permittee may obtain, upon request, a supply of Form 4710 from the Director.

Section 181.127 Daily summary of magazine transactions.

In taking the inventory required by Sections 181.122, 181.123, 181.124, and 181.125, the inventory shall be entered in a record of daily transactions to be maintained at each magazine of an approved storage facility. At the close of business of each day each licensee and permittee shall record by class of explosive materials, as prescribed in the Explosives List, the total quantity received in and removed from each magazine during the day and the total remaining on hand at the end of the day. Any discrepancy which might indicate a theft or loss of explosive materials shall be reported in accordance with the provisions of Section 181.30.

Section 181.128 Discontinuance of business.

Where an explosive materials business or operations is discontinued and succeeded by a new licensee or permittee the records prescribed by this subpart shall appropriately reflect such facts and shall be delivered to the successor. Where discontinuance of the business or operations is absolute, the records prescribed by this subpart shall be delivered within 30 days following the business or operations discontinuance to the Assistant Regional Commissioner for the internal revenue region in which the business was operated: *Provided, however,* Where State law or local ordinance requires the delivery of records to other responsible authority, the Assistant Regional Commissioner may arrange for the delivery of the records required by this subpart to such authority. (See also Section 181.61.)

Section 181.129 Exportation.

Explosive materials shall be exported in accordance with the applicable provisions of section 414 of the Mutual Security Act of 1954 (22 U.S.C. 1934) and regulations thereunder. However, licensed manufacturers, licensed importers, and licensed dealers exporting ex-

plosive materials shall maintain records showing the manufacture or acquisition of explosive materials as required by this part and records showing the quantity and class of explosive materials, as prescribed in the Explosives List, the name and address of the foreign consignee of the explosive materials and the date the explosive materials were exported.

Section 181.130 Transaction record for black powder to be used in antique firearms or in antique devices.

(a) A licensee or permittee shall not sell or otherwise distribute to a nonlicensee or nonpermittee commercially manufactured black powder in quantities of fifty pounds or less, intended to be used solely for sporting, recreational, or cultural purposes in antique firearms or in antique devices, unless he records the transactions on Form 5400.3.

(b) Prior to the sale or other distribution of the black powder in paragraph (a) of this section to a nonlicensee or nonpermittee who is acquiring it under the provisions contained in Section 181.105(g), the licensee or permittee so distributing the black powder shall obtain an executed Form 5400.3 from the distributee. The Form 5400.3 shall contain all the information as indicated by the headings on the form and the instructions thereon or issued in respect thereto, and as required by this part.

(c) Form 5400.3 shall be retained by the licensee or permittee as part of his permanent records in accordance with the requirements of paragraph (d) of this section.

(d) Each Form 5400.3 shall be retained in numerical (by transaction serial number) order commencing with "1" and continuing in regular sequence. When the numbering of any series reaches "1,000,000," the licensee or permittee may recommence the series. The recommenced series shall be given an alphabetical prefix or suffix. Where there is a change in proprietorship, or in the individual, firm, proprietorship, or in the individual, firm, corporate name, or trade name, the series in use at the time of such change may be continued.

(e) The requirements of this section shall be in addition to any other recordkeeping requirement contained in this part.

(f) A licensee or permittee may obtain, upon request, a supply of Form 5400.3 from the Director.

Subpart H—Exemptions

Section 181.141 Exemptions

(a) General. The provisions of this part shall not apply with respect to:

(1) Any aspect of the transportation of explosive materials via railroad, water, highway, or air which are regulated by the U.S. Department of Transportation, and agencies thereof.

(2) The use of explosive materials in medicines and medicinal agents in the forms prescribed by the official United States Pharmacopoeia, or the National Formulary.

(3) The transportation, shipment, receipt, or importation of explosive materials for delivery to any agency of the United States or to any State or political subdivision thereof.

(4) Small arms ammunition and components thereof.

(5) The manufacture under the regulation of the military department of the United States of explosive materials for, or their distribution to or storage or possession by the military or naval services or other agencies of the United States.

(6) Arsenals, navy yards, depots, or other establishments owned by, or operated by or on behalf of, the United States.

(7) The importation and distribution of fireworks in a finished state, commonly sold at retail for personal use in compliance with State laws or local ordinances.

(8) Gasoline, fertilizers, propellant actuated devices, or propellant actuated industrial tools manufactured, imported, or distributed for their intended purposes.

(b) Black powder. Except for the provisions applicable to persons required to be licensed under Subpart D, the provisions of this part shall not apply with respect to commercially manufactured black powder in quantities not to exceed fifty pounds, percussion caps, safety and pyrotechnic fuses, quills, quick and slow matches, and friction primers: *Provided*, That such black powder is intended to be used solely for sporting, recreational, or cultural purposes in antique firearms, as defined in 18 U.S.C. 921(a)(16), or in antique devices, as exempted from the term "destructive device" in 18 U.S.C. 921(a)(4),

and the provisions of Sections 181.105(g) and 181.130 are fully complied with.

181.142 Relief from disabilities incurred by indictment or conviction.

(a) Any person may make application for relief from the disabilities under the Act incurred by reason of an indictment for or conviction of a crime punishable by imprisonment for a term exceeding 1 year.

(b) An application for such relief shall be addressed to the Commissioner and shall include such supporting data as the applicant deems appropriate. In the case of a corporation, the supporting data should include information as to the absence of culpability in the offense of which the corporation was indicted or convicted, or of any person having the power to direct or control the management of the corporation, if such be the fact. The application shall be filed, in triplicate, with the Assistant Regional Commissioner for the internal revenue region wherein the business premises are located or the applicant resides.

(c) The Commissioner may grant relief to an applicant if it is established to the satisfaction of the Commissioner that the circumstances regarding the indictment or conviction, and the applicant's record and reputation are such that the applicant will not be likely to act in a manner dangerous to public safety, and that the granting of the relief would not be contrary to the public interest.

(d) A person who has been granted relief under this section shall be relieved of any disabilities imposed by the Act with respect to engaging in the business of importing, manufacturing, or dealing in explosive materials, or the purchase of explosive materials incurred by reason of such indictment or conviction.

(e) (1) A licensee or permittee who is indicted for or convicted of a crime punishable by imprisonment for a term exceeding 1 year during the term of a current license or permit or while he has pending a license or permit renewal application shall not be barred from licensed or permit operations for 30 days after the date of indictment or 30 days after the date upon which his conviction becomes final, and if he files his application for relief as provided by this section within such 30-day period, he may further continue licensed or permit operations during the pendency of his application. A licensee or permittee who does not file an application within 30 days from the date of his indictment or within 30 days from the date his conviction becomes final, shall not continue licensed or permit operations beyond 30 days from the date of his indictment or beyond 30 days from the date his conviction becomes final.

(2) In the event the term of a license or permit of a person expires during the 30-day period following the date of indictment or during the 30-day period after the date upon which his conviction becomes final or during the pendency of his application for relief, he must file a timely application for renewal of his license or permit in order to continue licensed or permit operations. Such license or permit application shall show that the applicant has been indicted for or convicted of a crime punishable by imprisonment for a term exceeding 1 year.

(3) A licensee or permittee shall not continue licensed or permit operations beyond 30 days following the date the Commissioner issues notification that the licensee's or permittee's application for removal of the disabilities resulting from an indictment or conviction has been denied.

(4) When as provided in this section a licensee or permittee may no longer continue licensed or permit operations, any application for renewal of license or permit filed by the licensee or permittee during the pendency of his application for removal of disabilities resulting from an indictment or conviction, shall be denied by the Assistant Regional Commissioner.

Subpart I—Unlawful Acts, Penalties, Seizures, and Forfeitures

Section 181.161 Engaging in business without a license.

Any person engaging in the business of importing, manufacturing, or dealing in explosive materials without a license issued under the Act, shall be fined not more than $10,000 or imprisoned not more than 10 years, or both.

Section 181.162 False statement or representation.

Any person who knowingly withholds information or makes any false or fictitious oral or written statement or furnishes or exhibits any false, fictitious, or misrepresented identification, intended or likely to deceive for the

purpose of obtaining explosive materials, or a license, permit, exemption, or relief from disability under the Act, shall be fined not more than $10,000 or imprisoned not more than 10 years, or both.

Section 181.163 False entry in record.

Any licensed importer, licensed manufacturer, licensed manufacturer-limited, licensed dealer, or permittee who knowingly makes any false entry in any record required to be kept pursuant to Subpart G of this part, shall be fined not more than $10,000 or imprisoned not more than 10 years, or both.

181.164 Unlawful storage.

Any person who stores any explosive material in a manner not in conformity with the provisions of Subpart J of this part, shall be fined not more than $1,000 or imprisoned not more than 1 year, or both.

Section 181.165 Failure to report theft or loss.

Any person who has knowledge of the theft or loss of any explosive materials from his stock and fails to report such theft or loss within 24 hours of discovery thereof in accordance with Section 181.30, shall be fined not more than $1,000 or imprisoned not more than 1 year, or both.

Section 181.166 Seizure or forfeiture.

Any explosive material involved or used or intended to be used in any violation of the provisions of the Act or of this part, or in any violation of any criminal law of the United States shall be subject to seizure and forfeiture, and all provisions of the Internal Revenue Code of 1954 (Title 26, U.S.C.) relating to the seizure, forfeiture, and disposition of firearms, as defined in section 5845(a) of that Code (26 U.S.C. 5845(a)), shall, so far as applicable, extend to seizures and forfeitures under the provisions of the Act.

Subpart J—Storage

181.181 General.

(a) No person shall store any explosive materials in a manner not in conformity with the provisions of this subpart (see Section 181.29). Section 842(j) of the Act requires that the storage of explosive materials by any person must be in a manner conforming with the regulations contained in this subpart. The storage standards prescribed by this subpart confer no rights or privileges to store explosive materials in a manner contrary to State or other law.

(b) Notwithstanding the provisions of paragraph (a) of this section, the Assistant Regional Commissioner may authorize alternate storage facilities for the storage of explosive materials when it is shown that such alternate facilities are or will be constructed in a manner substantially equivalent to the standards of construction contained in this subpart. Such alternate storage facilities shall not be used for the storage of explosive materials until approval is received from the Assistant Regional Commissioner.

(c) A licensee or permittee who intends to make additions to, modification of, or changes in his approved storage facilities shall follow the procedures and be subject to the requirements of Section 181.54(c).

Section 181.182 Classes of explosive materials.

For purposes of this part, there shall be three classes of explosive materials. These classes, together with the description of explosive materials comprising each class, are as follows.

(a) **High explosives.** Explosive materials which can be caused to detonate by means of a blasting cap when unconfined. (For example, dynamite.)

(b) **Low explosives.** Explosive materials which can be caused to deflagrate when confined. (For example, black powder.)

(c) **Blasting agents.** (For example, ammonium nitrate-fuel oil.)

Section 181.183 Types of storage facilities.

For purposes of this part, there shall be five types of storage facilities. These types, together with the classes of explosive materials which shall be stored therein, are as follows:

(a) **Type 1 storage facilities.** Permanent storage facilities for the storage of high explosives, subject the limitiations prescribed by Sections 181.186 and 181.193. Other classes may also be stored therein.

(b) **Type 2 storage facilities.** Portable indoor and outdoor storage facilities for the storage

of high explosives, subject to the limitations prescribed by Sections 181.186, 181.188(b), and 181.193. Other classes may also be stored therein.

(c) Type 3 storage facilities. Portable outdoor facilities for the temporary storage of high explosives while attended (for example, a "day-box"), subject to the limitations prescribed by Sections 181.186 and 181.193. Other classes may also be stored therein.

(d) Type 4 storage facilities. Facilities for the storage of low explosives, subject to the limitations prescribed by Sections 181.186(b), 181.190(b), and 181.193. Blasting agents may also be stored therein.

(e) Type 5 storage facilities. Facilities for the storage of blasting agents, subject to the limitations prescribed by Sections 181.186 (a) and (c), 181.191(b), and 181.193.

Section 181.184 Inspection of storage facilities.

Any person storing explosive materials shall open and inspect his storage facilities at intervals not greater than 3 days to determine whether the explosives therein are intact and to determine whether there has been unauthorized entry or attempted entry into the storage facilities or the unauthorized removal of facilities or their content.

181.185 Movement of explosive materials.

All explosive materials must be kept in storage facilities meeting the standards prescribed by this subpart unless they are:

(a) In the process of manufacture, or

(b) Being physically handled in the operating process of a licensee or user,

(c) Being used, or

(d) Being transported to a place of storage or use by a permittee or by a person who has lawfully acquired explosive materials pursuant to the requirements of Section 181.126.

Section 181.186 Location of storage facilities.

(a) (1) Except as otherwise provided in this subpart, storage facilities in which any explosive materials are stored shall be located at minimum distances from inhabited buildings, passenger railways, public highways, and from other storage facilities in which explosive materials are stored as specified in the American Table of Distances (see Section 181.198): *Provided,* That this table shall not apply to any indoor storage facility. When a storage facility is not barricaded, the distances shown in the American Table of Distances shall be doubled. For purposes of this paragraph, a storage facility shall be deemed barricaded when it is effectually screened from inhabited buildings, passenger railways, public highways, and other storage facilities in which explosive materials are stored either by a natural or artificial barricade of such height that a straight line from the top of any sidewall of the storage facility to the eave line of such other inhabited building or storage facility, or to a point 12 feet above the center of a passenger railway or public highway, will pass through such intervening barricade.

(2) If any two or more storage facilities are separated from each other by less than the distances specified in Section 181.198, then such two or more storage facilities, as a group, shall be considered as one storage facility, and the total quantity of explosive materials stored in such group shall be treated as if stored in a single facility and shall comply with the minimum of distances specified in Section 181.198 from other storage facilities, inhabited buildings, passenger railways, and public highways.

(b) Storage facilities in which low explosives are stored shall be located at minimum distances from inhabited buildings, passenger railways, public highways, and from other storage facilities in which explosive materials are stored as specified in the table of distances for storage of low explosives (see Section 181.199): *Provided,* That this table shall not apply to any indoor storage facility. The distances shown therein shall not be reduced by the presence of barricades.

(c) Ammonium nitrate and storage facilities in which blasting agents are stored shall be located at minimum distances from storage facilities containing high explosives or blasting agents as specified in the Table of Recommended Separation Distances of Ammonium Nitrate and Blasting Agents from Explosives or Blasting Agents (see Section 181.200).

Section 181.187 Construction of type 1 storage facilities.

A type 1 storage facility shall be a permanent structure: a building, an igloo or Army-type structure, a tunnel, or a dugout. It shall be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and well ventilated.

(a) Buildings. All building type storage facilities shall be constructed of masonry, wood, metal, or a combination of these materials and shall have no openings except for entrances

and ventilation. Ground around such storage facilities shall slope away for drainage.

(1) **Masonry wall construction.** Masonry wall construction shall consist of brick, concrete, tile, cement block, or cinder block and shall be not less than 6 inches in thickness. Hollow masonry units used in construction shall have all hollow spaces filled with well-tamped coarse dry sand or weak concrete (a mixture of one part cement and eight parts of sand with enough water to dampen the mixture while tamping in place). Interior walls shall be covered with a non-sparking material.

(2) **Fabricated metal wall construction.** Metal wall construction shall consist of sectional sheets of steel or aluminum not less than number 14 gauge, securely fastened to a metal framework. Such metal wall construction shall be either lined inside with brick, solid cement blocks, hardwood not less than 4 inches in thickness, or shall have at least a 6-inch sand fill between interior and exterior walls. Interior walls shall be constructed of or covered with a nonsparking material.

(3) **Wood frame wall construction.** The exterior of outer wood walls shall be covered with iron or aluminum not less than number 26 gauge. An inner wall of nonsparking material shall be constructed so as to provide a space of not less than 6 inches between the outer and inner walls, which space shall be filled with coarse dry sand or weak concrete.

(4) **Floors.** Floors shall be constructed of a nonsparking material and shall be strong enough to bear the weight of the maximum quantity to be stored.

(5) **Foundations.** Foundations shall be constructed of brick, concrete, cement block, stone, or wood posts. If piers or posts are used, in lieu of a continuous foundation, the space under the buildings shall be enclosed with metal.

(6) **Roof.** Except for buildings with fabricated metal roofs, the outer roof shall be covered with no less than number 26-gauge iron or aluminum fastened to 7/8-inch sheathing.

(7) **Bullet-resistant ceilings or roofs.** Where it is possible for a bullet to be fired directly through the roof and into the storage facility at such an angle that the bullet would strike a point below the top of inner walls storage facilities shall be protected by one of the following methods:

(i) A sand tray shall be located at the tops of inner walls covering the entire ceiling area, except that necessary for ventilation, lined with a layer of building paper, and filled with not less than 4 inches of coarse dry sand. (ii) A fabricated metal roof shall be constructed of 3/16-inch plate steel lined with 4 inches of hardwood. (For each additional 1/16-inch of plate steel, the hardwood lining may be decreased 1 inch.)

(8) **Doors.** All doors shall be constructed of 1/4-inch plate steel and lined with 2 inches of hardwood. Hinges and hasps shall be attached to the doors by welding, riveting or bolting (nuts on inside of door). They shall be installed in such a manner that the hinges and hasps cannot be removed when the doors are closed and locked.

(9) **Locks.** Each door shall be equipped with two mortise locks; or with two padlocks fastened in separate hasps and staples; or with a combination of mortise lock and a padlock; or with a mortise lock that requires two keys to open; or a three-point lock. Locks shall be five-tumbler proof. All padlocks shall be protected with 1/4-inch steel caps constructed so as to prevent sawing or lever action on the locks or hasps.

(10) **Ventilation.** Except at doorways, a 2-inch air space shall be left around ceilings and the perimeter of floors. Foundation ventilators shall be not less than 4 by 6 inches. Vents in the foundation, roof, or gables shall be screened and offset.

(11) **Exposed metal.** No sparking metal construction shall be exposed below the top of walls in the interior of storage facilities, and all nails therein shall be blind-nailed or countersunk.

(b) **Igloos, Army-type structures, tunnels, and dugouts.** Igloo, Army-type, tunnel, and dugout storage facilities shall be constructed of reinforced concrete, masonry, metal or a combination of these materials. They shall have an earthmound covering of not less than 24 inches on the top, sides and rear. Interior walls and floors shall be covered with a nonsparking material. Storage facilities of this type shall also be constructed in conformity with the requirements of paragraph (a) (4) and paragraphs (a) (8) through (11) of this section.

Section 181.188 Construction of type 2 storage facilities.

A type 2 storage facility shall be a box, a trailer, a semitrailer or other mobile facility. It shall be bullet-resistant, fire-resistant,

weather-resistant, theft-resistant, and well ventilated. Except as provided in paragraph (c) of this section, hinges and hasps shall be attached to the covers or doors in the manner prescribed in Section 181.187 (a) (8) and the locking system shall be that prescribed in Section 181.187(a)(9).

(a) Outdoor storage facilities. Outdoor storage facilities shall be at least 1 cubic yard in size and supported in such a manner so as to prevent direct contact with the ground. The sides, bottoms, tops, and covers or doors shall be constructed of 1/4-inch steel and shall be lined with 2 inches of hardwood. Edges of metal covers shall overlap sides at least 1 inch. The ground around such storage facilities shall slope away for drainage. When unattended, vehicular storage facilities shall have wheels removed or shall be otherwise effectively immobilized by kingpin locking devices or other methods approved by the Director.

(b) Indoor storage facilities. No indoor facility for the storage of high explosives shall be located in a residence or dwelling. When located in a warehouse, wholesale, or retail establishment, such storage facilities shall be provided with substantial wheels or casters to facilitate removal therefrom. No more than two indoor storage facilities shall be kept in any one building. Two storage facilities may be kept in the same building only when one is used for the storage of blasting caps, squibs, or similar items and the other facility is used for the storage of other high explosives. Each storage facility shall be located on the floor nearest the ground level and within 10 feet of an outside exit. Indoor storage facilities within one building shall be separated by a distance of not less than 10 feet. No indoor storage facility shall contain a quantity of high explosives in excess of 50 pounds or more than 5,000 blasting caps. Indoor facilities shall be of wood or metal construction as prescribed in subparagraphs (1) or (2) of this paragraph.

(1) Wood construction. Wood indoor storage facilities shall have sides, bottoms, and covers or doors constructed of 2-inch hardwood and shall be well braced at corners. They shall be covered with sheet metal of not less than number 20 gauge. Nails exposed to the interior of such facilities shall be countersunk.

(2) Metal construction. Metal indoor storage facilities shall have sides, bottoms, and covers or doors constructed of number 12-gauge metal and shall be lined inside with a nonsparking material. Edges of metal covers shall overlap sides at least 1 inch.

(c) Cap boxes. Storage facilities for blasting caps in quantities of 100 or less shall have sides, bottoms, and covers constructed of number 12-gauge metal and lined with a nonsparking material. Hinges and hasps shall be attached thereto by welding. A single five-tumbler proof lock shall be sufficient for locking purposes.

Section 181.189 Construction of type 3 storage facilities.

A type 3 storage facility shall be a "day-box" or other portable facility. It shall be constructed in the same manner prescribed for type 2 outdoor storage facilities in Section 181.188(a), except that it may be less than 1 cubic yard in size, and shall be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and well ventilated. Hinges, hasps, locks, and locks protection shall be in conformity with the requirements of Section 181.187(a) (8) and (9). The ground around such storage facilities shall slope away for drainage. No explosive materials shall be left in such facilities if unattended. The explosives materials contained therein must be removed to types 1 or 2 storage facilities for unattended storage.

Section 181.190 Construction of type 4 storage facilities.

A type 4 storage facility may be a building, an igloo or Army-type structure, a tunnel, a dugout, a box, a trailer, or a semitrailer other mobile facility and shall be fire resistant, weather-resistant, and theft-resistant. They shall be constructed of masonry, metal-covered wood, fabricated metal, or a combination of these materials. The walls and floors of such storage facilities shall be lined with a nonsparking material. The doors or covers shall be metal or solid wood covered with metal. The foundations, locks, lock protection, hinges, hasps and interior shall be in conformity with the requirements of Section 181.187(a) (5), (8), (9), and (11).

(a) Outdoor storage facilities. The ground around such storage facilities shall slope away for drainage. When unattended, vehicular storage facilities shall have wheels removed or shall be otherwise effectively immobilized by kingpin locking devices or other methods approved by the Director.

(b) Indoor storage facilities. No indoor facility for the storage of low explosives shall be

located in a residence or dwelling. When located in a warehouse, wholesale, or retail establishment, such storage facilities shall be provided with substantial wheels or casters to facilitate removal therefrom. No more than one indoor storage facility shall be kept in any one building. It shall be located on the floor nearest the ground level and within 10 feet of an outside exit. No indoor storage facility shall contain a quantity of low explosives in excess of 50 pounds.

Section 181.191 Construction of type 5 storage facilities.

A type 5 storage facility may be a building, an igloo or Army-type structure, a tunnel, a dugout, a bin, a box, a trailer, or a semitrailer or other mobile facility and shall be theft-resistant. The doors or covers thereof shall be solid wood or metal. The hinges, hasps, locks, and lock protection shall be in conformity with the requirements of Section 181.187(a) (8) and (9).

(a) **Outdoor storage facilities.** The ground around such storage facilities shall slope away for drainage. When unattended, vehicular storage facilities shall have wheels removed or shall be otherwise effectively immobilized by kingpin locking devices or other methods approved by the Director.

(b) **Indoor storage facilities.** No indoor storage facility for the storage of blasting agents shall be located in a residence or dwelling.

Section 181.192 Smoking and open flames.

Smoking, matches, open flames, and spark-producing devices shall not be permitted in, or within 50 feet of, any outdoor storage facility.

Section 181.193 Quantity and storage restrictions.

Explosive materials in excess of 300,000 pounds and blasting caps in excess of 20 million shall not be stored in one storage facility. Blasting caps shall not be stored with other explosive materials in the same storage facility.

Section 181.194 Storage within types 1, 2, 3, and 4 facilities.

(a) Explosive materials within a storage facility shall not be placed directly against interior walls. Any devices constructed or placed within a storage facility shall not interfere with ventilation.

(b) Containers of explosive materials shall be stored by being laid flat with top sides up. Corresponding classes, grades, and brands shall be stored together within a storage facility in such a manner that class, grade, and brand marks are easily visible upon inspection. Stocks of explosive materials shall be stored so as to be easily counted and checked.

(c) Except with respect to fiberboard containers, containers of explosive materials shall not be unpacked or repacked inside a storage facility or within 50 feet thereof and shall not be unpacked or repacked in close proximity to other explosive materials. Containers of explosive materials shall be securely closed while being stored.

(d) Tools used for opening or closing containers of explosive materials shall be of nonsparking materials, except that metal slitters may be used for opening fiberboard containers. A wood wedge and a fiber, rubber, or wooden mallet shall be used for opening or closing wood containers of explosive materials. Metal tools other than nonsparking transfer conveyors shall not be stored in any storage facility containing high explosives.

Section 181.195 Housekeeping.

Storage facilities shall be kept clean, dry, and free of grit, paper, empty packages and containers, and rubbish. Floors shall be regularly swept. Brooms and other utensils used in the cleaning and maintenance of storage facilities shall have no spark-producing metal parts. Floors stained by leakage from explosive materials shall be cleaned according to instructions of the manufacturer. When any explosive material has deteriorated to the extent that it is in a dangerous condition or if a liquid leaks therefrom, it shall be destroyed in accordance with the instructions of its manufacturer. The area surrounding storage facilities shall be kept clear of rubbish, brush, dry grass, or trees for not less than 25 feet in all directions. Any other combustible materials shall be kept a distance of not less than 50 feet from outdoor storage facilities.

Section 181.196 Repair of storage facilities.

Prior to the interior repair of storage facilities, all explosive materials shall be removed and the interior shall be cleaned. Prior to the exterior repair of storage facilities, all explosive materials shall be removed if there exists a possibility that such repairs may produce sparks or flame. The explosive materials

removed from storage facilities under repair shall either be placed in other storage facilities appropriate for the storage of such materials under this subpart or placed a safe distance from the facilities under repair where they shall be properly guarded and protected until the repairs have been completed.

Section 181.197 Lighting.

No lighting shall be placed or used in a storage facility of type 1, 2, 3, or 4 except battery-activated safety lights or battery-activated safety lanterns.

Section 181.198 American table of distances for storage of explosive materials.

Explosives		Distances in feet when storage is barricaded			
Pounds over	Pounds not over	Inhabited buildings	Passenger railways	Public highways	Separation of magazines
2	5	70	30	30	6
5	10	90	35	35	8
10	20	110	45	45	10
20	30	125	50	50	11
30	40	140	55	55	12
40	50	150	60	60	14
50	75	170	70	70	15
75	100	190	75	75	16
100	125	200	80	80	18
125	150	215	85	85	19
150	200	235	95	95	21
200	250	255	105	105	23
250	300	270	110	110	24
300	400	295	120	120	27
400	500	320	130	130	29
500	600	340	135	135	31
600	700	355	145	145	32
700	800	375	150	150	33
800	900	390	155	155	35
900	1,000	400	160	160	36
1,000	1,200	425	170	165	39
1,200	1,400	450	180	170	41
1,400	1,600	470	190	175	43
1,600	1,800	490	195	180	44
1,800	2,000	505	205	185	45
2,000	2,500	545	220	190	49
2,500	3,000	580	235	195	52
3,000	4,000	635	255	210	58
4,000	5,000	685	275	225	61
5,000	6,000	730	295	235	65
6,000	7,000	770	310	245	68
7,000	8,000	800	320	250	72
8,000	9,000	835	335	255	75
9,000	10,000	865	345	260	78
10,000	12,000	875	370	270	82
12,000	14,000	885	390	275	87
14,000	16,000	900	405	280	90
16,000	18,000	940	420	285	94
18,000	20,000	975	435	290	98
20,000	25,000	1,055	470	315	105
25,000	30,000	1,130	500	340	112
30,000	35,000	1,205	525	360	119
35,000	40,000	1,275	550	380	124
40,000	45,000	1,340	570	400	129
45,000	50,000	1,400	590	420	135
50,000	55,000	1,460	610	440	140
55,000	60,000	1,515	630	455	145
60,000	65,000	1,565	645	470	150
65,000	70,000	1,610	660	485	155
70,000	75,000	1,655	675	500	160
75,000	80,000	1,695	690	510	165
80,000	85,000	1,730	705	520	170
85,000	90,000	1,760	720	530	175
90,000	95,000	1,790	730	540	180
95,000	100,000	1,815	745	545	185
100,000	110,000	1,835	770	550	195
110,000	120,000	1,855	790	555	205
120,000	130,000	1,875	810	560	215
130,000	140,000	1,890	835	565	225
140,000	150,000	1,900	850	570	235
150,000	160,000	1,935	870	580	245
160,000	170,000	1,965	890	590	255
170,000	180,000	1,990	905	600	265
180,000	190,000	2,010	920	605	275
190,000	200,000	2,030	935	610	285
200,000	210,000	2,055	955	620	295
210,000	230,000	2,100	980	635	315
230,000	250,000	2,155	1,010	650	335
250,000	275,000	2,215	1,040	670	360
275,000	300,000	2,275	1,075	690	385

See footnotes at end of document.

(American Table of Distances for Storage of Explosives, as Revised and Approved by The Institute of Makers of Explosives, June 5, 1964)

Section 181.199 Table of distances for storage of low explosives.

Pounds (over)	Pounds (not over)	Inhabited building distance (feet)	Public railroad and highway distance (feet)	Above-ground magazine (feet)
(1)	(2)	(3)	(4)	(5)
0	1,000	75	75	50
1,000	5,000	115	115	75
5,000	10,000	150	150	100
10,000	20,000	190	190	125
20,000	30,000	215	215	145
30,000	40,000	235	235	155
40,000	50,000	250	250	165
50,000	60,000	260	260	175
60,000	70,000	270	270	185
70,000	80,000	280	280	190
80,000	90,000	295	295	195
90,000	100,000	300	300	200
100,000	200,000	375	375	250
200,000	300,000	450	450	300

(A portion of Table 5-4.1, as published in Department of Defense 4145.27 M, "DOD Ammunition and Explosives Safety Standards", March 1969.)

Section 181.200 Table of recommended separation distances of ammonium nitrate and blasting agents from explosives or blasting agents.

Donor Weight		Minimum separation distance of receptor when barricaded[1] (ft.)		Minimum thickness of artificial barricades[4] (in.)
Pounds over	Pounds not over	Ammonium nitrate[2]	Blasting agent[3]	
	100	3	11	12
100	300	4	14	12
300	600	5	18	12
600	1,000	6	22	12
1,000	1,600	7	25	12
1,600	2,000	8	29	12
2,000	3,000	9	32	15
3,000	4,000	10	36	15
4,000	6,000	11	40	15
6,000	8,000	12	43	20
8,000	10,000	13	47	20
10,000	12,000	14	50	20
12,000	16,000	15	54	25
16,000	20,000	16	58	25
20,000	25,000	18	65	25
25,000	30,000	19	68	30
30,000	35,000	20	72	30
35,000	40,000	21	76	30
40,000	45,000	22	79	35
45,000	50,000	23	83	35
50,000	55,000	24	86	35
55,000	60,000	25	90	35
60,000	70,000	26	94	40
70,000	80,000	28	101	40
80,000	90,000	30	108	40
90,000	100,000	32	115	40
100,000	120,000	34	122	50
120,000	140,000	37	133	50
140,000	160,000	40	144	50
160,000	180,000	44	158	50
180,000	200,000	48	173	50
200,000	220,000	52	187	60
220,000	250,000	56	202	60
250,000	275,000	60	216	60
275,000	300,000	64	230	60

Note:

Recommended separation distances to prevent explosion of ammonium nitrate and ammonium nitrate-based blasting agents by propagation from nearby stores of high explosives or blasting agents referred to in the Table as the "donor." Ammonium nitrate, by itself, is not considered to be a donor when applying this Table. Ammonium nitrate, ammonium nitrate-fuel oil or combinations thereof are acceptors. If stores of ammonium nitrate are located within the sympathetic detonation distance of explosives or blasting agents, one-half the mass of the ammonium nitrate should be included in the mass of the donor.

These distances apply to the separation of stores only. The American Table of Distances shall be used in determining separation distances from inhabited buildings, passenger railways and public highways.

[1] When the ammonium nitrate and/or blasting agent is not barricaded, the distances shown in the Table shall be multiplied by six. These distances allow for the possibility of high velocity metal fragments from mixers, hoppers, truck bodies, sheet metal structures, metal containers, and the like which may enclose the "donor." Where storage is in bullet-resistant magazines recommended for explosives or where the storage is protected by a bullet-resistant wall, distances and barricade thicknesses in excess of those prescribed in the American Table of Distances are not required.

[2] The distances in the Table apply to ammonium nitrate that passes the insensitivity test prescribed in the definition of ammonium nitrate fertilizer promulgated by the National Plant Food Institute; and ammonium nitrate failing to pass said test shall be stored at separation distances determined by competent persons and approved by the authority having jurisdiction.

[3] These distances apply to nitro-carbo-nitrates and blasting agents which pass the insensitivity test prescribed in the U.S. Department of Transportation (DOT) regulations.

[4] Earth, or sand dikes, or enclosures filled with the prescribed minimum thickness of earth or sand are acceptable artificial barricades. Natural barricades, such as hills or timber of sufficient density that the surrounding exposures which require protection cannot be seen from the "donor" when the trees are bare of leaves are also acceptable.

(Reprinted from Recommended Separation Distances of Ammonium Nitrate and Blasting Agents from Explosives or Blasting Agents, NFPA No. 492-1969 Edition, as approved by the Institute of Makers of Explosives.)

Federal Explosives Storage Requirements

Following, in table form, are construction, housekeeping and storage requirements for Types 1 through 5 explosives storage facilities. These requirements are the minimum acceptable under Federal law and regulations (27 CFR, Part 181, Subpart J—Storage). In specific instances, variance from a particular requirement or requirements may be granted by the Regional Director.

This section includes (a) a table of the classes of explosives which may be stored in each of the five types of magazines; (b) a table of housekeeping and construction requirements that apply to all types of storage facilities; and (c) tables setting forth in detail the requirements that apply specifically to each of the five types of magazines.

Types of Storage Facilities

(18 USC, Section 842(j)) (27 CFR, Section 181.183)

Storage Type	Classes of Explosive Materials Which May Be Stored Therein
Type 1 (permanent)	High Explosives Low Explosives Blasting Agents
Type 2 (portable)	High Explosives Low Explosives Blasting Agents
Type 3 ("day-box" for temporary storage)	High Explosives Low Explosives Blasting Agents
Type 4	Low Explosives Blasting Agents *Electric Blasting Caps
Type 5	Blasting Agents

*As a result of tests with electric blasting caps, it has been determined that these blasting caps are not subject to sympathetic detonation. Therefore, a Type 4 storage facility meets the necessary requirements for storage of electric blasting caps.

Note: 1. Blasting caps shall not be stored with other explosive materials in the same storage facility.

2. Explosives storage limitations and quantity restrictions are stated in 27 CFR Sections 181.186, 181.188(b), 181.188(c), 181.189, 181.190(b), and 181.193. For tables of distances for high explosives, low explosives, and blasting agents, see 27 CFR Sections 181.198, 181.199, and 181.200, respectively.

Housekeeping and Construction Requirements Common to All Types of Storage Facilities

(18 USC, Section 842(j)) (27 CFR, Sections 181.187, 181.194, and 181.195)

Item	Requirements
Hinges and Hasps	Shall be attached to doors by either Welding, OR Riveting, OR Bolting (nuts on inside of door).
Locks	Each door shall be equipped with either 2 mortise locks, OR 2 padlocks fastened in separate hasps and staples, OR A combination of a mortise lock and a padlock, OR Mortise lock requiring 2 keys to open, OR Three-point lock. Locks shall be five-tumbler proof. Padlocks shall be protected with 1/4" steel caps constructed to prevent sawing or lever action on locks or hasps. Note: Outdoor-mobile storage facilities with one steel, case-hardened, five-tumbler padlock, having at least a 7/16" shackle diameter, have been determined by the Director to meet necessary requirements.
Lighting	No lighting shall be placed or used in a magazine of type 1, 2, 3, or 4 except battery-activated safety lights or battery-activated safety lanterns: Provided, That electrical illumination may be used when explosion-proof fixtures and wiring in rigid conduit are used inside and all electric switches are located outside the magazine.

Item	Requirements
Housekeeping	Storage facilities shall be kept clean, dry, and free of grit, paper, empty packages and containers, and rubbish. Explosive materials shall not be placed directly against interior walls of storage facility. Brooms and other cleaning utensils shall have no spark-producing metal parts. Only tools made of nonsparking materials shall be used in Types 1, 2, 3, and 4 magazines. (Metal slitters may be used for opening fiberboard containers. Metal tools other than nonsparking transfer conveyors shall not be stored in any magazine containing high explosives.) Area surrounding storage facilities shall be kept clear of rubbish, brush, dry grass, or trees for not less than 25 feet in all directions. Any other combustible materials shall be kept a distance of not less than 50 feet from outdoor storage facilities.

Type 1 Storage

(18 USC, Section 842(j)) (27 CFR, Sections 181.187 and 181.197)

A type 1 storage facility shall be a permanent structure: a building, an igloo or Army-type structure, a tunnel, or a dugout; and shall be bullet-resistant, weather-resistant, theft-resistant, and well-ventilated.

Item	Requirements
Masonry Wall	Shall be constructed of either Brick, not less than 6" thick, OR Concrete, not less than 6" thick, OR Tile, not less than 6" thick, OR *Cement block, not less than 6" thick, OR *Cinder block, not less than 6" thick. *Hollow masonry units shall have all hollow spaces filled with well-tamped coarse dry sand or weak concrete.

Type 1 Storage (Continued)

Item	Requirements
Metal Wall	Sectional sheets of one of the following shall be securely fastened to a metal framework: Steel, not less than 14 gauge, OR Aluminum, not less than 14 gauge. Shall be lined with either Brick, OR Solid cement blocks, OR Hardwood, not less than 4" thick, OR Shall have at least 6" sand fill between inner and outer walls.
Wood Wall	Exterior shall be covered with either Iron, not less than 26 gauge, OR Aluminum, not less than 26 gauge. Inner wall shall be constructed to provide not less than 6" between outer and inner walls, space filled with either Coarse dry sand, OR Weak concrete.
Foundations	Shall be constructed of either Brick, OR Concrete, OR Cement block, OR Stone, OR Wood posts (If piers or posts are used, space under buildings shall be enclosed with metal).
Floors	Shall be constructed of nonsparking material. Shall be strong enough to bear weight of maximum quantity to be stored.
Roof	Outer roof (except fabricated metal roofs) shall be covered with either 26-gauge iron, fastened to 7/8" sheathing, OR 26-gauge aluminum fastened to 7/8" sheathing. Where possible for a bullet to be fired directly through roof and into storage facility, magazine shall be protected by either A sand tray, filled with not less than 4" of coarse dry sand, covering the entire ceiling area, except that necessary for ventilation, OR Fabricated metal roof construction of 3/16" plate steel, lined with 4" hardwood (for each additional 1/16" of plate steel, hardwood may be decreased 1").

Type 1 Storage (Continued)

Item	Requirements
Doors	Shall be constructed of 1/4" steel. Shall be lined with 2" of hardwood.
Hinges, Hasps, and Locks	See construction requirements common to all types of facilities.
Interior	Shall be constructed of or covered with a nonsparking material. No sparking metal construction shall be exposed below top of walls in interior. All nails shall be blind-nailed or countersunk.
Ventilation	2" air space shall be left around ceiling and perimeter of floors, except at doorways. Foundation ventilators shall be not less than 4"×6". Vents in foundation, roof, or gables shall be screened and offset.
Ground	Ground around storage facility shall slope away for drainage.
Igloos, Army-Type Structures, Tunnels and Dugouts	Shall be constructed of reinforced concrete, masonry, metal, or a combination of these materials. Shall have an earthmound covering of not less than 24" on the top, sides and rear. Interior walls and floors shall be covered with a nonsparking material. Floor, door, lock, ventilation, exposed metal, and lighting requirements are as stated above.
Lighting	See construction requirements common to all types of facilities.
Housekeeping	See housekeeping requirements common to all types of facilities.

Type 2 Storage

(18 USC, Section 842(j)) (27 CFR, Sections 181.188 and 181.197)

A type 2 storage facility shall be a box, a trailer, a semi-trailer, or other mobile facility. It shall be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and well ventilated.

Item	Requirements
Hinges, Hasps, and Locks	See construction requirements common to all types of storage facilities.

Type 2 Storage (Continued)

Item	Requirements
Lighting	See construction requirements common to all types of storage facilities.
Housekeeping	See housekeeping requirements common to all types of storage facilities.
Restrictions on Type 2 Outdoor Storage Facilities	
Size	Shall be at least 1 cubic yard in size.
Ground	Outdoor storage facilities shall be supported in such a manner so as to prevent direct contact with the ground. Ground around storage facility shall slope away for drainage.
Construction	Sides, bottoms, tops, and covers or doors shall be constructed of 1/4" steel and lined with 2" of hardwood.
Unattended Storage	Unattended vehicular storage facilities shall have wheels removed or shall be immobilized by kingpin locking devices.
Restrictions On Type 2 Indoor Storage Facilities	
Location	No indoor storage facility for storage of high explosives shall be located in a residence or dwelling. Storage facilities located in a warehouse, or wholesale or retail establishment, shall be provided with substantial wheels or casters to facilitate removal therefrom. No more than two indoor storage facilities shall be located in any one building. Two storage facilities may be kept in the same building only when one is used for storage of blasting caps and the other for storage of other high explosives. Each storage facility shall be located on the floor nearest ground level and within 10 feet of an outside exit. Indoor storage facilities within one building shall be separated by a distance of not less than 10 feet.
Quantity Restrictions	No indoor storage facility shall contain a quantity of high explosives in excess of 50 pounds or more than 5,000 blasting caps.

Type 2 Storage (Continued)

Item	Requirements
Construction	Shall be of either *Wood* (Shall have sides, bottoms, and covers or doors constructed of 2" hardwood and shall be well braced at corners. They shall be covered with sheet metal (not less than 20 gauge). Exposed nails shall be countersunk), OR *Metal* (Shall have sides, bottoms, and covers or doors constructed of 12-gauge metal and shall be lined inside with a nonsparking material. Edges of metal shall overlap sides at least 1").
Cap Boxes	
	Storage facilities for blasting caps in quantities of 100 or less shall have sides, bottoms, and covers constructed of 12-gauge metal, with hinges and hasps attached by welding. One five-tumbler proof lock shall be sufficient for locking purposes.

Type 3 Storage

(18 USC, Section 842(j)) (27 CFR, Sections 181.188(a), 181.189, and 181.197)

A type 3 storage facility shall be a "day-box" or other portable facility. It shall be constructed in the same manner prescribed for type 2 outdoor storage facilities in 181.188(a), except that it may be less than 1 cubic yard in size, and shall be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and well ventilated.

Item	Requirements
Construction	Doors or covers, sides, bottoms, and tops shall be constructed of 1/4" steel and lined with 2" of hardwood. Edges of metal covers shall overlap sides at least 1".
Hinges, Hasps, and Locks	See housekeeping and construction requirements common to all types of storage facilities.
Ground	Ground around storage facility shall slope away for drainage.

Type 3 Storage (Continued)

Item	Requirements
Unattended Storage	No explosive materials shall be left in storage facility if unattended. Explosive materials must be removed to types 1 or 2 storage facilities for unattended storage.
Lighting	See construction requirements common to all types of storage facilities.
Housekeeping	See housekeeping requirements common to all types of storage facilities.

Type 4 Storage

(18 USC, Section 842(j)) (27 CFR, Sections 181.187(a)(5), (11); 181.190; and 181.197)

A type 4 storage facility may be a building, an igloo or Army-type structure, a tunnel, a dugout, a box, a trailer, or a semitrailer or other mobile facility; and shall be fire-resistant, weather-resistant, and theft-resistant.

Item	Requirements
Construction	Shall be of either Masonry, OR Metal-covered wood, OR Fabricated metal, OR Combinations of these materials.
Doors or Covers	Shall be constructed of either Metal, OR Solid wood covered with metal.
Foundations	Shall be constructed of either Brick, OR Concrete, OR Cement block, OR Stone, OR Wood posts (If piers or posts are used, space under buildings shall be enclosed with metal.
Interior	Shall be lined with nonsparking material. No sparking metal construction shall be exposed below top of walls in interior. All nails shall be blind-nailed or countersunk.

Type 4 Storage (Continued)

Item	Requirements
Hinges, Hasps, and Locks	See construction requirements common to all types of storage facilities.
Lighting	See construction requirements common to all types of storage facilities.
Housekeeping	See housekeeping requirements common to all types of storage facilities.
Restrictions On Type 4 Outdoor Storage Facilities	
Ground	Ground around storage facility shall slope away for drainage.
Unattended Storage	Unattended vehicular storage facilities shall have wheels removed or shall be immobilized by kingpin locking devices.
Restrictions On Type 4 Indoor Storage Facilities	
Location	No indoor facility for the storage of low explosives shall be located in a residence or dwelling. Storage facilities located in a warehouse, or wholesale or retail establishment, shall be provided with substantial wheels or casters to facilitate removal therefrom. No more than one indoor storage facility shall be kept in any one building. Storage facility shall be located on floor nearest ground level and within 10 feet of an outside exit.
Quantity Restrictions	No indoor facility shall contain a quantity of low explosives in excess of 50 pounds.

Type 5 Storage

(18 USC, Section 842(j)) (27 CFR, Sections 181.191 and 181.197)

A Type 5 storage facility may be a building, an igloo or Army-type structure, a tunnel, a dugout, a bin, a box, a trailer, or a semitrailer or other mobile facility; and shall be theft-resistant.

Item	Requirements
Doors or Covers	Shall be constructed of either Solid wood, OR Metal.
Hinges, Hasps, and Locks	See construction requirements common to all types of storage facilities.
Housekeeping	See housekeeping requirements common to all types of storage facilities.
Restrictions on Type 5 Outdoor Storage Facilities	
Ground	Ground around storage facility shall slope away for drainage.
Unattended Storage	Unattended vehicular storage facilities shall have wheels removed or shall be immobilized by kingpin locking devices.
Restrictions on Type 5 Indoor Storage Facilities	
Location	No indoor storage facility for storing of blasting agents shall be located in a residence or dwelling.

ATF Explosives Rulings and Procedures

Following are digests of ATF rulings on explosives matters which are of special significance to explosives licensees and permittees. The full texts of these rulings can be found in the ATF *Bulletin;* the appropriate *Bulletin* citation is listed following the ruling number at the end of each digest item. Also included is a digest of ATF Procedure 75-4, which was incorporated in Industry Circular 75-10.

Subject Index

27 CFR 181.11: Meaning of Terms "Inhabited Buildings"

ATF has held that a building, such as an office or repair shop, which is a part of the premises of an explosives manufacturer and is used in connection with the manufacture, transportation, storage, or use of explosive materials is not an "inhabited building" as defined in 27 CFR 181.11.

Regulations in 27 CFR 181.11 define "inhabited building" as any building regularly occupied in whole or in part as a habitation for human beings, or any church, schoolhouse, railroad station, store or other structure where people are accustomed to assemble, except any building occupied in connection with the manufacture, transportation, storage or use of explosive materials.

These provisions are intended to provide protection to persons who inhabit buildings located near premises where explosives are manufactured, stored, etc. However, it is the intent of section 181.11 to except buildings used by the explosives industry in connection with the manufacture, transportation, storage, or use of explosive material from the table of distance requirements on "inhabited buildings." ATF Ruling 75-20, 75 C.B. 64

27 CFR 181.187 & .190: Construction of Storage Facilities

ATF has held that explosives storage facilities with smooth-finished concrete floors that were constructed under contract for the use of the Department of Defense and that are presently being leased to licensees and permittees for the storage of commercial explosives are considered to be in compliance with the requirements for nonsparking floors, as set forth in 27 CFR 181.187 (a) (4), 181.187(b), and 181.190, for the storage of all types of fully packaged explosives, pyrotechnics and propellants, with the exception of black powder. Any other such magazines which have smooth finished concrete floors and which meet or exceed the Department of Defense construction specifications will also be considered to be in compliance with the requirements of Part 181 with respect to nonsparking floors.

It is the responsibility of the licensee or permittee to provide verification that such facilities were manufactured under the Department of Defense specifications or that the facilities meet or exceed such specification standards.

If the Regional Director determines that the concrete floors of Type 1 or Type 4 explosives storage facilities do not meet the preceding requirements, he will require such floors

to be covered with a nonsparking material, such as epoxy paint or mastic. ATF Ruling 75-21, 75 C.B. 67

27 CFR 181.127: Daily Summary of Magazine Transactions

ATF has held that a licensee or permittee proprietor of an approved explosives storage facility may keep the records required by 27 CFR 181.127 at a centrally located area on the licensed premises, provided a separate record of daily transactions for each magazine is maintained.

Regulations in 27 CFR 181.127 dealing with daily transactions in explosives provide that the intentory shall be entered in a record of daily transactions to be maintained at each magazine of an approved storage facility. ATF Ruling 75-30, 75 C.B. 66

27 CFR 181.11: Meaning of Terms "Engaged in the Business"

ATF has held that companies, such as public utility companies engaged in line and facility construction, which manufacture explosives on a regular or continual basis are considered to be engaged in the business of manufacturing explosive materials and must be appropriately licensed as required by 18 U.S.C. 842.

The term "Manufacturer" is defined in 18 U.S.C. 841 (h) as "any person engaged in the business of manufacturing explosive materials for purposes of sale or distribution for his own use."

Although the term "engaged in the business" is not susceptible to a rigid definition, it is generally interpreted to imply an element of continuity or habitual practice; such an element is clearly present in the operations of companies as outlined in paragraph one. Therefore, these companies are considered to be "engaged in the business" and must be licensed as explosives manufacturers. See ATF Ruling 75-31, 75 C.B. 65

27 CFR 181.109: Identification of Explosive Materials

The Bureau has held that any method, or combination of methods, for affixing the required marks to the immediate container of explosive materials, or outside container used in the packaging thereof, is authorized, provided the identifying marks (1) are legible, (2) show all required information and, (3) are not rendered undecipherable by extended periods of storage. Where it is desired to utilize a coding system and to omit printed markings on the container, a letterhead application displaying the coding to be used and the manner of its application shall be filed and approved by the Director, ATF, prior to the use of the proposed coding. Further, where a manufacturer operates his plant for only one shift during the day, the shift of manufacture need not be shown.

The above holding by ATF came in response to inquiries as to whether methods of affixing identifying marks to containers of explosive materials, other than the traditional stamping of the marks in ink or use of decals, could be authorized for use by licensed manufacturers under the provisions of 27 CFR 181.109.

It has been found that when explosive materials are stored for a period of time in polyethylene or other soft containers, the seepage of oil or other liquid components of the explosive material through the container walls will tend to render illegible the identifying marks on the container. A manufacturer proposed a more permanent method of marking plastic containers by using a system of perforated numbers and code symbols similar to that used on cancelled checks. This perforated coding would be in addition to other identifying marks stamped in ink on the container. The manufacturer contends that although the ink may become illegible, the perforated coding will continue to provide the identification required by 27 CFR 181.109.

Regulations in 27 CFR 181.109 provide in part that each licensed manufacturer of explosive materials shall legibly identify by marking all explosive materials he manufactures for sale or distribution. The marks shall identify the manufacturer, location, date, and shift of manufacture. The manufacturer shall place the required mark on each cartridge, bag or other immediate container of explosive materials manufactured for sale or distribution, and also on any outside container. ATF Ruling 75-35, 75 C.B. 65

27 CFR 181.11: Meaning of Terms "State of Residence"

ATF has held that, if a person is a corporation or other business entity, "State of residence" means the State in which such corporation or other business entity maintains a "place of business." A business entity establishing another "place of business" or "job site" in another State would acquire a "State of residence" in that State as well. For example, a company engaged in construction work would acquire a residence in each State wherein its work is performed. Its place of business in that State would be the job site at which business is carried on. It would not be essential to a determination of State of residence that a branch office be maintained in, or administrative work performed in, the States where job sites are located.

Such a company would not, therefore, need a permit to acquire explosive materials from a licensee in a State for use at job sites located therein. Form 4710, Explosives Transaction Record, would show the out-of-State address of the business entity as the principal place of business and the location of the job site as the local place of business.

ATF has also received inquiries as to whether licensees may lawfully distribute explosive materials to companies when the employees arranging the purchase and accepting delivery reside outside the distributor's State of residence.

The fact that an employee of a resident business entity does not reside in the same State as the distributor is immaterial. The purpose of the data requested on Form 4710 is to identify the person authorized by the business entity to make the purchase of explosive materials on the entity's behalf and to assure the distributor that such person appears on the required certified list of names of representatives or agents authorized by the business entity to acquire the materials. Regulations (27 CFR 181.105(e)), implementing in part Title 18, U.S.C. 842(f), provide that each business entity acquiring explosive materials shall furnish the * * * licensed dealer with a current certified list of the names of representatives or agents authorized to acquire explosive materials on behalf of such business entity. The purpose of the data requested on Form 4721, Explosives Delivery Record, is to identify the employee of the business entity or the employee of a carrier accepting delivery of explosive materials on behalf of the distributee at the distributor's business premises.

Thus, in the case of business entities, the information required on Forms 4710 and 4721 with respect to employees or agents arranging for the distribution is not for the purpose of establishing the residence of such persons but only for identification purposes. ATF Ruling 76-4, 76 C.B. 104

27 CFR 181.126: One Sale with Multiple Deliveries

Under the provisions of 27 CFR 181.126, a sale or other distribution by a licensee or permittee shall not be made to a nonlicensee or nonpermittee unless the transaction is recorded on a Form 4710, the duplicate of which shall be forwarded to ATF no later than the close of the next business day.

Under certain conditions, a single Form 4710 may be used to cover a series of deliveries. When an initial sale has been consummated, with partial deliveries to be made in the immediate future, the requirements of .126 will have been satisfied if the following steps are taken:

1. Form 4710 shall be executed at the time the initial sale is made although delivery of the explosive material is extended over a period of time not to exceed 30 days.
2. The duplicate Form 4710 shall be forwarded to the regional director on or before the close of business on the business day next succeeding that on which the initial sale is made. It shall include in the block provided for identifying the explosive materials (item 20 of Form 4710, Rev. 11-75) a statement that the Form 4710 covers delayed deliveries of the explosive materials specified therein.
3. The original Form 4710 retained by the licensee as part of his required records shall subsequently be noted to accurately reflect the date of each separate delivery and shall identify and describe each separate lot of explosive materials delivered.
4. In lieu of showing the separate deliveries on his retained copy of Form 4710,

the proprietor may attach to such retained record a copy of the delivery record or a copy of the bill of lading or commercial invoice covering each delivery, provided that, as to each such delivery, the attachment contains the date of the delivery and all the information required by item 20 of Form 4710.

5. All other regulatory requirements and instructions relating to the completion of the form must be complied with. ATF Ruling 76-10, 1976 C.B., page 105.

27 CFR 181.30:

Reporting Theft or Loss of Explosive Materials

Section 842(k) of Title 18, U.S.C., and implementing regulations require that theft or loss of explosive materials be reported to ATF and local authorities within 24 hours after discovery of the loss or theft. All persons, including licensees and permittees, who store explosives must report their loss or theft within the above time frame by telephone to the Bureau. In addition, licensees and permittees are required to confirm their report by the filing of a Form 4712 and all other persons are to confirm their report by letter to their nearest ATF office. ATF Ruling 77-13, 1977 C.B., page 190.

27 CFR 181.193

Storage of Electric Blasting Caps with other Explosive Materials

ATF has been requested to authorize the storage of electric blasting caps in a separate compartment of a type two portable magazine.

Under the provisions of 18 U.S.C. 842(j), it shall be unlawful for any person to store any explosive material in a manner not in conformity with regulations promulgated by the Secretary. In promulgating such regulations, the Secretary shall take into consideration the class, type, and quantity of explosive materials to be stored, as well as the standards of safety and security recognized in the explosives industry.

Regulations in 27 CFR 181.193 restrict the storage of blasting caps with other explosive materials. Section 181.181(b) provides that alternate storage magazines may be authorized for the storage of explosive materials when it is shown that such alternate magazines are or will be constructed in a manner substantially equivalent to the standards of construction contained in the applicable regulations.

The Bureau recognizes that the transportation and the storage of explosive materials in the same vehicle along with electric blasting caps is often desired. The Institute of Makers of Explosives has established a recommended standard for such transport in their Safety Library Publication No. 22, dated November 5, 1971 and revised July 1976. This standard prescribes the minimum construction criteria for (a) a container securely attached (1) above the cab of a vehicle (see Figure 1, Exhibit A), or (2) attached to the vehicle frame under the cargo compartment (see Figure 2, Exhibit A), or (b) a built-in compartment in the cargo space of the vehicle (see Exhibit B). In addition to motorized vehicles, consideration was also given for the use of similar criteria on portable wheeled trailers being used as magazines under section 181.188 (a) of the regulations (see Exhibit E).

In order to insure standards of safety and security in the storage of explosive materials while allowing the industry a proper latitude in the construction of magazines, it is held that vehicles used for transporting and for storing explosive materials that are constructed in conformity with the standards listed below, and in compliance with all other safety and security provisions contained in Part 181, i.e., effectively immobilized when unattended, will meet the requirements of ATF regulations. Even though constructed on the same vehicle, each compartment will be considered as a separate magazine. The two magazines on the vehicle will, however, be considered as one magazine when applying the American Table of Distances.

Construction Standards for Storage of Electric Blasting Caps (Non Mass-Detonating)

a. The container or compartment must provide for total enclosure of the electric blasting caps.
b. The partition between the explosives storage compartment and the electric blasting cap compartment must be of laminate construction consisting of a A/C grade or better exterior plywood, gypsum wall board and low carbon steel plates. In order of arrangement, the

laminate must conform to the following, with minimum thickness of each lamination as indicated: 1/2 inch plywood, 1/2 inch gypsum wall board, 1/8 inch low carbon steel, and 1/4 inch plywood, with the 1/4 inch plywood facing the explosives storage compartment. See Exhibit C for details of laminate construction. The door to the electric blasting cap compartment must be of metal construction or solid wood covered with metal, the outside walls and top must be of the same construction as the rest of the vehicle or trailer. If high explosives, or bullet sensitive explosive materials are stored in the vehicle, then the storage compartment of the vehicle must be constructed so as to be bullet resistant.

c. As an alternative to the construction requirements shown in paragraph b, a container for use only as illustrated in Exhibit A may be used when constructed as follows:

1. The top, lid or door, and the sides and bottom of each container must be of laminate construction consisting of A/C grade or better exterior plywood, solid hardwood, and sheet metal. In order of arrangement, the laminate must consist of the following with the minimum thickness of each lamination as indicated: 1/4-inch plywood, 1-inch solid hardwood, 1/2-inch plywood, and 22-gauge sheet metal constructed inside to outside in that order. See Exhibit D for detail of laminate construction.
2. The hardwood must be fastened together with wood screws, the 1/2-inch plywood must be fastened to the hardwood with wood screws, the inner 1/4-inch plywood must be fastened to the hardwood with adhesive and the 22-gauge sheet metal must be attached to the exterior of the container with screws.

d. The laminate composite material must be securely bound together by waterproof adhesive or other equally effective means.

e. The steel plates at the joints of laminations must be secured by continous filet welds.

f. All interior surfaces of the container or compartment must be constructed so as to prevent contact of contents with any sparking metal.

g. There must be direct access to the container or into a compartment from outside the vehicle.

h. Each container or compartment must have a snug fitting continuous piano-type hinged lid or door equipped with a locking device (or devices).

i. Without permitting direct access to contents under normal conditions, the locking or hinging mechanisms must permit at least one edge of the lid or door to rise or move outward at least 1/2-inch when subjected to internal pressure.

j. The exterior of the container or compartment must be weather resistant.

ATF Ruling 77-24, 1977 C.B., page 191

27 CFR 181.22, .122-.127, .185

Alternate Recordkeeping and Storage for Special Fireworks

The Bureau has concluded a study of the effect of Federal explosives regulations on the operations of Federal explosives licensees who manufacture, import, and deal in special fireworks and Federal explosives permittees who use special fireworks. Special fireworks are classified by the Department of Transportation as Class "B" explosives and are regulated by the Bureau of Alcohol, Tobacco and Firearms as low explosives. Their manufacture and distribution require the manipulation of explosive materials in a manner that is utterly unique in the explosives industry.

A. Alternate Records

Regulations in 27 CFR 181.22 allow the Director to approve alternate methods or procedures subject to stated conditions when he finds that:

(1) Good cause has been shown for the use of the alternate method or procedure;

(2) The alternate method or procedure is within the purpose of, and consistent with the effect intended by, the specifically prescribed method or procedure and is substantially equivalent to that specifically prescribed method or procedure; and

(3) The alternate method or procedure will not be contrary to any provision of law and will not result in an increase in cost to the Government or hinder the effective administration of this part.

The regulations in 27 CFR 181.122, 181.123, 181.124 and 181.125 require the preparation of detailed, separate permanent records of explosive materials received and disposed of. The Bureau finds that entries on commercial records may, subject to the conditions of this ruling, be acceptable as alternative records instead of the separate records required by regulations. In addition the Bureau has determined that the requirement for recording the quantity of explosive materials may be met by recording the number and size of special fireworks articles. This determination applies to permanent records maintained by licensees and permittees and to the alternate recordkeeping provisions described below.

Held, licensees who manufacture, import and deal in special fireworks and permittees who use special fireworks may maintain records as described below, as an alternative to the requirements of 27 CFR Part 181. In order to comply with the regulations, licensees or permittees desiring to utilize the proposed alternate methods and procedures must submit an application to do so under the provisions of 27 CFR 181.22(a) regarding alternate methods and procedures.

1. **Production, acquisition, or importation of special fireworks; packaged complete displays; and packaged display segments such as grand finales.** In lieu of the record requirements of sections 181.122(b), 181.123(b), 181.124(b), and 181.125(c), the licensee or permittee may upon approval use invoices or other commercial records when such documents contain all information required by the regulations. Furthermore, the quantity of explosive materials produced, imported, or otherwise acquired may be recorded on the commercial record by showing the number and size of special fireworks articles. These invoices or other commercial records will be acceptable substitutes for required records if they are (a) filed in an orderly manner, (b) kept separate from records of materials other than fireworks, and (c) readily available for inspection on the licensed premises.

2. **Distribution of special fireworks; packaged complete displays; and packaged display segments.** In lieu of the record requirements of sections 181.122(c), 181.123(c) (1), 181.124(d), and 181.125(c), the licensee or permittee may upon approval use invoices or other commercial documents when such documents contain all information required by the regulations. Furthermore, the quantity of explosive materials distributed may be recorded on the commercial record by showing the number and size of special fireworks articles. These invoices or other commercial records will be acceptable substitutes for required records if they are (a) filed in an orderly manner, (b) kept separate from records of materials other than fireworks, and (c) readily available for inspection on the licensed premises.

B. Preparation of the Explosives Transaction Record, ATF Form 4710 (5400.4)

The regulations in 27 CFR 181.126 provide that a licensee or permittee shall not sell or otherwise distribute explosive materials to any person, other than another licensee or permittee, unless he records the transaction on an Explosives Transaction Record, Form 4710, which shall contain all of the information as indicated by the headings and instructions thereon.

Held, the item on Form 4710 requesting the identification of quantity, size and type of explosive materials including name of manufacturer and all manufacturer's marks of identification may be completed by identifying a commercial invoice. The identified commercial invoice must contain all the information required on the form and such invoice or a copy thereof must be attached to the Form 4710. Further, the requirement for identifying the quantity of explosive materials on Form 4710 may be met by recording the number and size of special fireworks articles.

C. Storage requirements

Under 27 CFR 181.185 of the regulations, explosive materials that are in the process of manufacture or are being physically handled in the operating process of a licensee or permittee do not have to be kept in storage facilities meeting the standards of regulations. The Bureau has determined that explosive materials that have been entered into the manufacturing process for special fireworks, as well as those contained in special fireworks that are partially assembled, should be considered explosive material in the process of manufacture. In addition, as special fireworks in a finished state flow through display packing buildings or areas, they should be considered explosive materials that are being physically handled in the operating process of a licensee or permittee.

Held, the following explosive materials, subject to the stated conditions, are not considered subject to the storage requirements of 27 CFR Part 181 while they are on the premises of a licensee or permittee pursuant to 27 CFR 181.185.

1. Dry explosive powders and mixtures that have been entered into the manufacturing process for special fireworks articles;
2. Unfinished special fireworks articles; and
3. Individual special fireworks articles and packaged display segments that are received into designated packing buildings or areas for sorting, temporary storage, and packing into complete display units.

D. Preparation of the daily summary of magazine transactions

The regulations in 27 CFR 181.127 provide that at the close of business each day each licensee and permittee shall record by class of explosive materials, as prescribed in the explosives list, the total quantity received in and removed from each magazine during the day and the total remaining on hand at the end of the day.

Held, licensees and permittees may:

1. Maintain daily magazine summary records at any location on the business premises provided the records separately identify each magazine; and
2. Record the quantities of explosive materials received in and removed from the magazine during the day and the total remaining at the end of the day by showing, as applicable to the magazine contents:
   (a) The number and size of individual special fireworks articles in a finished state; or
   (b) The number of packaged display segments or packaged displays.

ATF Ruling 79-8, ATFB 1979-1, page 27

27 CFR 181.41: General Explosives Storage Facility Descriptions

In ATF Procedure 75-4, which became effective November 1, 1975, the Bureau revised requirements for descriptions of explosives storage facilities that are filed by applicants intending to store explosive materials. (This Procedure is incorporated in Industry Circular 75-10.)

The Director, ATF, has determined that this additional descriptive information is required in order to insure compliance with the law and regulations. Accordingly, Form 4705, Application for License, and Form 4707, Application for Permit, have been revised. Follow-

ing is the text of the Procedure, beginning with Section 3.

Sec. 3. Licenses. A person intending to engage in business as an importer, a manufacturer of, or a dealer in, explosive materials shall complete Form 4705, Application for License, in accordance with the instructions on the form, and forward the forms with the license fee to the office specified on the form. If approved, the Regional Director (ATF) will issue a license and return a copy of the application to the applicant. At the time of renewal of a license the Regional Director may require the licensee to file a new or amended application, or additional descriptive pages to be attached to the application, upon a determination that the licensee's currently approved application is inaccurate or does not fully describe the storage facilities. If the application is denied, the applicant will be advised in writing of the reasons for the denial.

Sec. 4. Permits. A person intending to acquire, transport, ship, import or receive explosive materials in interstate or foreign commerce for his own use and not for resale shall complete Form 4707, Application for Permit, in accordance with the instructions on the form and forward the forms with the permit fee to the office specified on the form. If approved, the Regional Director (ATF) will issue a permit and return a copy of the application to the applicant. At the time of renewal of a permit the Regional Director may require the permittee to file a new or amended application, or additional descriptive pages to be attached to the application, upon a determination that the permittee's currently approved application is inaccurate or does not fully describe the storage facilities. If the application is denied, the applicant will be advised in writing of the reasons for the denial.

Sec. 5. Storage. .01 If explosive materials are to be stored, the requirements of 27 CFR Part 181, Subpart J—Storage, must be complied with before the application will be approved. An applicant for a license or permit who intends to store explosive materials shall fully describe the intended storage facilities to support the applicant's affirmation that the storage facilities meet the requirements set forth in 27 CFR Part 181, Subpart J—Storage.

.02 The description should, as a minimum, include the following information:

(a) The type of magazine (building, igloo, tunnel, portable box, portable trailer, etc.)

(b) The location and distance from applicant's place of business.

(c) The distance to the next nearest storage magazine.

(d) A description of significant terrain features and physical structures, such as buildings, roads, utilities and other facilities which could be damaged if the magazine exploded. Indicate the distance between the magazine and the feature.

(e) The materials (including dimensions and thicknesses) used for the structure (e.g. concrete, corrugated iron over wood, plywood, tin and earth, etc.)

(f) The security, physical safeguards, locks, safety equipment, and anti-theft measures.

(g) The dimensions and capacity of each magazine.

(h) The class of explosive materials to be stored in each magazine.

(i) The owner(s) of the magazine, if other than the applicant.

(j) The names and telephone numbers of individuals who could open the magazines for inspection by ATF officers.

(k) Any special conditions, such as inaccessibility in winter, etc.

Sec. 6. Effective Date. The effective date of this procedure is November 1, 1975.

Sec. 7. Inquiries. Inquiries regarding this ATF Procedure should refer to its number and be addressed to the office of your Regional Director.

ATF Procedure 75-4, 75 C.B. 79

Explosives License/Permit Numbering System Expanded

The Bureau recently instituted a new explosives license numbering system. Through the use of these expanded license numbers, ATF can apply computer operations to increase the efficiency of the explosives licensing program. This procedure offers the potential for saving both money and manpower.

It is not necessary, however, for you as a licensee to use the expanded number in your day-to-day operations. The basic license number previously issued to you has not been changed and may still be used on your letterheads, business cards, invoices, records, etc. This basic number is composed of digits 2 and 3, and 11 through 15; a key for interpreting the meaning of all the digits is shown below.

This same expanded numbering system will apply also to explosives permits.

Digit	Stands For
1	Alcohol, Tobacco and Firearms Region
2,3	State-Alpha designation
4,5,6	County of State where business is conducted
7,8	Type of License
9,10	Expiration Date code
11-15	Sequence Number of License

Name

1. License No. 9 CA 001 20 H9 00001
2. Expiration Date Aug. 1, 1979
3. Employer Identification No. or Social Security No. 76 012 3456
4. County Alameda
5. Class of License and Explosives 20

MANUFACTURER OF:	DEALER IN:
20. High Explosives	26. High Explosives
21. Low Explosives	27. Low Explosives
22. Blasting Agents	28. Blasting Agents
IMPORTER OF:	MANUFACTURER (LIMITED) OF:
23. High Explosives	30. High Explosives
24. Low Explosives	31. Low Explosives
25. Blasting Agents	32. Blasting Agents

6. Issued by Regional Director, ATF, at (Address)
San Francisco, CA 94105

7. Signature of Regional Director

ATF Form 4706 (3-75) Part 1 PREVIOUS EDITIONS ARE OBSOLETE

License (18 U.S.C. Chapter 40, Explosives)

In accordance with the provisions of Title XI, Organized Crime Control Act of 1970, and the regulations issued thereunder (27 CFR Part 181), you are licensed to engage in the business specified in Item 5 of the license, within the limitations of Chapter 40, Title 18, United States Code, and the regulations issued thereunder, until the expiration date specified in Item 2 of this license.

Department of the Treasury
Bureau of Alcohol, Tobacco and Firearms

SEE "WARNING" ON BACK

Effect of Title XI on the Fireworks Industry

Title XI of the Organized Crime Control Act of 1970 (18 U.S.C. Chapter 40) establishes controls over explosive materials, including black powder and other pyrotechnic compositions commonly used in fireworks. Part 181 of Title 27, Code of Federal Regulations (CFR), contains the regulations which implement Title XI.

Section 181.141(h) exempts regulation "the importation and distribution of fireworks in a finished state, commonly sold at retail for personal use in compliance with State laws or local ordinances." This section does not exempt "special fireworks," often referred to as "display fireworks," which are classified by the Department of Transportation as Class "B" explosives (see Question and Answer section for additional information on fireworks). The exemption applies only to "common fireworks" in a finished state classified by Department of Transportation regulations as Class "C" explosives (49 CFR 173.100).

Who Needs a License?

1) Manufacturers of black powder;

2) Manufacturers of any other explosive material used in manufacturing "special fireworks" (Class "B" explosives) or "common fireworks" (Class "C" explosives); and

3) Importers of or dealers in "special fireworks."

Who Needs a Permit?

1) A person acquiring or transporting "special fireworks" interstate for his own use and not for resale. Agencies of the United States or of any State or political subdivision thereof are exempt from permit requirements; and

2) A person, other than a licensee, acquiring or transporting explosive materials interstate for use in manufacturing "special fireworks" or "common fireworks," unless the materials consist of black powder of an exempt quantity.

Frequently, persons contracting for display fireworks (such as would be appropriate for Fourth of July observances, for example) from an out-of-state dealer receive a total service, including the services of a pyrotechnician who transports display fireworks in interstate commerce to the site of the display and conducts or supervises the display. In these instances, the customers purchase the dealer's services rather than the explosive materials themselves, and the cost of the services includes the dealer's expense in providing the fireworks utilized. When business is transacted in this manner, the customers purchasing and receiving the services need not obtain Federal permits since they are not actually acquiring explosive materials outside their States of residence, nor are they receiving such materials or causing them to be transported in interstate commerce. If the dealer furnishing the services is a licensee, his interstate transportation of explosive materials to the display sites would be conduct authorized by his license.

Types of Permits

1) User permit: allows a permittee to acquire, transport, ship and receive "special fireworks" in interstate or foreign commerce for his own use and not for resale. This permit is issued at a cost of $20.00 for a one-year period and is renewable at a cost of $10.00.

2) User-limited permit: identical to the user permit but issued for a single transaction only at a cost of $2.00; non-renewable. A new permit must be obtained for each transaction. This type of permit is advantageous to civic and veterans organizations who wish to conduct a single display such as on the Fourth of July.

Storage

The law prohibits any person from storing any explosive materials in a manner not in conformity with the regulations promulgated by the Secretary of the Treasury (18 U.S.C. 842(j)). Pursuant to this section, the Secretary has prescribed storage regulations in 27 CFR Part 181, Subpart J. Since display fireworks are not exempt from regulations, they must be stored in conformity with regulations. Display fireworks generally contain perchlorate mixture explosives, potassium chlorate base explosive mixtures, and black powder, all of which are designated as explosives on the List of Explosive Materials (printed in this publication) compiled by the Director, ATF, and which fall within the definition of low explosives in 27 CFR 181.182(b). Thus, display fireworks

should be stored as low explosives in facilities meeting the requirements for Type 4 storage facilities, prescribed by 27 CFR 181.190, unless they contain other classes of explosives. The manufacturer of exempt or non-exempt fireworks having stocks of explosive materials on hand to be used in the manufacture of fireworks must store his stocks in conformity with applicable storage requirements. In storage facilities where weight restrictions apply, the net weight of the explosive materials may be used. To determine the actual weight of the explosive materials it may be necessary to contact the manufacturers.

Basic Explosives Dealer's and User's Guide to Federal Explosives Regulation

*EXPLOSIVES MAY NOT BE DISTRIBUTED BY LICENSEES TO ANY PERSON WHO:

- Is under 21 years of age
- Has been convicted of a crime punishable by imprisonment for a term exceeding one year
- Is under indictment for a crime punishable by imprisonment for a term exceeding one year
- Is an unlawful user of marihuana or any depressant or stimulant or narcotic drugs
- Has been adjudicated a mental defective
- Is a fugitive from justice
- May not lawfully purchase, possess or use such explosives under State or local laws applicable at the place of distribution

*DEALERS IN EXPLOSIVES MUST:

- Have a Federal license
- Have proper storage facilities
- Keep accurate and complete records
- Verify that each out-of-State buyer has a Federal permit
- Have nonlicensees or nonpermittees execute Form 4710, Explosives Transaction Record
- Have nonlicensees and nonpermittees acquiring black powder under the exemption (see footnote, this page) execute Form 5400.3, Transaction Record for Black Powder to be Used in Antique Weapons.
- Have employees of buyers or carriers to whom delivery is made at a distributor's premises execute Form 4721, Explosives Delivery Record
- Verify buyer's identity

*USERS OF EXPLOSIVES: PERMITTEES AND NONPERMITTEES

Federal permits are required of those who purchase explosives from outside their State of residence and/or transport them interstate. The permittee must keep complete and accurate records of his acquisitions and dispositions of explosives.

Nonpermittees may buy and use explosives in their State of residence without obtaining a Federal permit. They must give proper identification to the dealer and execute Form 4710, Explosives Transaction Record.

NO PERSON SHALL STORE ANY EXPLOSIVE IN A MANNER NOT IN CONFORMITY WITH REGULATIONS

ALL PERSONS WILL PROMPTLY REPORT TO ATF AND LOCAL AUTHORITIES ANY LOSS OR THEFT OF THEIR EXPLOSIVES

A FEDERAL LICENSE OR PERMIT DOES NOT CONFER ANY RIGHT OR PRIVILEGE TO VIOLATE ANY STATE LAW OR LOCAL ORDINANCE

The above summary is general and does not purport to convey fully the Federal explosives law and regulations pertaining to dealers and users.

* Under Public Law 93-639 and implementing regulations, transactions involving commercially manufactured black powder, in quantities of 50 pounds or less, for sporting, recreational or cultural purposes in antique firearms or antique devices have been largely deregulated. For further information, see the special article headed "Black Powder Transactions."

Black Powder Transactions

As a result of Public Law 93-639 and implementing regulations:

(1) An exemption now exists which allows a nonpermittee or nonlicensee to purchase commercially manufactured black powder, in quantities of 50 pounds or less, solely for sporting, recreational or cultural purposes in antique firearms or antique devices virtually without regulation, except as set forth in paragraph (2).

(2) Nonlicensees and nonpermittees who purchase under the terms of this exemption (181.105[g]) must execute ATF Form 5400.3, Transaction Record for Black Powder to be Used in Antique Weapons. The form shall contain all the required information as indicated by the headings on the form and the instructions. Licensees and permittees making distribution of black powder shall retain Forms 5400.3 as part of their permanent records. (181.124[b])

(3) A nonlicensee or nonpermittee purchasing black powder under the exemption need not be a resident of the State in which the dealer is located. Also, the categories of persons to whom the distribution of explosive materials is prohibited do not apply to black powder transactions made under the exemption.

(4) Acquisitions of black powder not qualifying under this exemption are subject to the same regulatory requirements that govern any other low explosive.

(5) All persons who sell black powder, regardless of quantity, must be licensed as explosives dealers and must provide adequate storage.

APPENDIX C

PRINS MAURITS LABORATORIUM LETTER REQUESTING INVESTIGATION

prins maurits laboratorium
instituut voor chemische en technologische research

To members of OECD-IGUS
see Mailing List (Shortened version)

postbus 45 2280 AA rijswijk
lange kleiweg 137-139
telefoon 015-138777
postgiro 527327
telex 38034 pmtno nl

datum . 25-11-1980
ons nummer . 80 TR 746
uw brief .
bijlagen .
onderwerp . Firework (TR Ass.P0013)

Dear Member,

In the Netherlands especially during the celebration of the New-Year a huge amount of fireworks is used by the public. Up to now the hazards of the different types of firework is regulated only by our transport-acts prescribing the maximum permissible amount of pyrotechnic mixture.
At the moment our "Ministry of Public Health and Environmental Hygiene" is contemplating to regulate in their Food and Drugs Act the maximum hazard of fireworks sold to the public.
TNO has been asked to draft the articles which aim to prevent injuries to people and animals. As a start to our advice we intend to make a survey of the way in which said prevention of injuries to people and animals by fireworks is regulated in the various countries. Therefore we herewith ask for your kind cooperation by answering the following questions:

a) Does any act (or other formal regulation) in your country regulate the sale transport or storage of fireworks in order to prevent injuries to people and/or animals
b) If so, can you give us the name of the act (regulation) and the relevant articles *)
c) What kind of experiments are used in you country to judge the dangerousness of fireworks ? Can you give us a description of these experiments ?
d) Do you have any other information that may be rised in this field.

If you are interested we can send you the survey after it is finished.
Thanking you in advance.
Kind regards.

*) Translation can be done by us.

OECD-IGUS

Mailing - List (Shortened)

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APPENDIX D

FIREWORKS INCIDENTS: THE 1978 STORY

Fireworks Incidents: The 1978 Story

For 1978, two fireworks-related fatalities in the United States were reported to the NFPA, along with 73 major injuries, 535 minor injuries, and 603 fires, with a total property loss of $1.8 million.[1]

These figures are based on a survey of approximately 1,100 state and local fire marshals, principally United States members of the Fire Marshals Association of North America. The fire marshals were asked to report fireworks incidents in their jurisdictions associated with the annual Fourth of July celebration of American independence. The purpose of the survey was not to lead to an overall national estimate of fireworks experience, but rather, to demonstrate that fireworks remain a serious fire protection concern and to generate a selection of incidents that can be used to study fireworks problems.

Results from the corresponding survey for 1977 were: 1 death, 58 serious injuries, 746 minor injuries, and 1,611 fires, with a total property loss of $1.6 million. Many fire marshals reported declines this year in the number of fireworks incidents in their jurisdictions; the reasons for these decreases are not known.

Summaries of the 1978 fireworks experience reported to the NFPA are presented in *Figures 1 and 2 and Tables* 1 and 2. The following are highlights of these summaries:

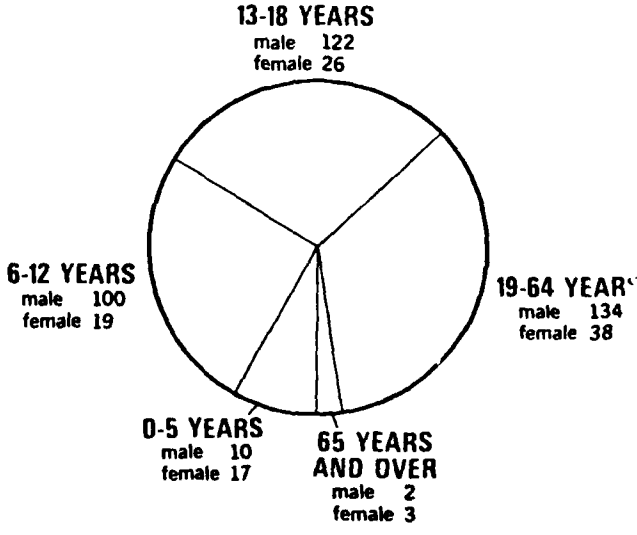
- Males were much more frequently reported as casualties of fireworks incidents than females;
- Victims under the age of 19 accounted for 62 percent of all casualties for whom age was reported;
- The number of incidents reported related inversely to the strictness of state legislation on the sale and use of fireworks.

Important problems mentioned in 1978 fireworks reports were:

- Unsupervised use of fireworks by children;
- Attempts to enhance effects by combining fireworks parts to create larger devices;
- Insertion of fireworks into containers (bottles, cans, mailboxes, etc.);
- Devices set off inside buildings, particularly smoke bombs, starting some fires and causing unexpected evacuations;
- Fireworks used intentionally to startle people, particularly by teenagers.

The NFPA advocates a total ban on the sale and use of fireworks, except for authorized public displays, and

Figure 1. 1978 fireworks casualties by age and sex (based on 471 cases where both age and sex were reported).



[1] Major injuries are those that result in total or partial loss of eyesight or hearing, major burns, dismemberment, or other injury that permanently disfigured the victim.

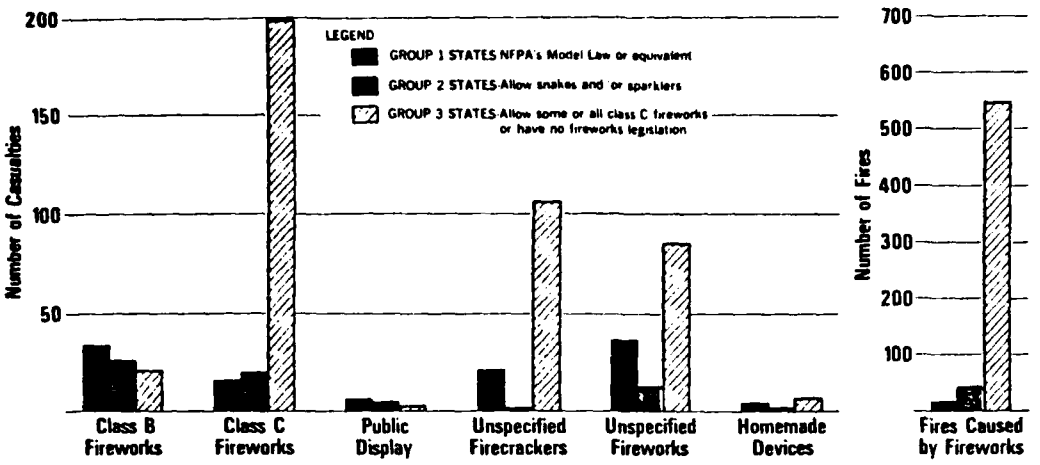


Figure 2. Number of casualties and fires by type of firework and state fireworks legislation.[2]

promotes this concept through NFPA's *Model Fireworks Law* (NFPA 494L). To date, 15 states have adopted the model law or its equivalent.[3]

Many fire marshals pointed out problems encountered in enforcing fireworks laws. These problems included:

- Ready availability of illegal devices, including those banned by the federal *Child Protection Act of 1966* (such as cherry bombs, silver salutes, and M-80s);
- Low costs of manufacture, high profits, and lenient penalties for violators of fireworks laws;
- Extensive transport of fireworks across state lines.

In efforts to enforce fireworks laws, a number of major confiscations occurred in 1978. In Deerfield, Ohio, sheriff's deputies arrested two men and seized about $1 million worth of fireworks that were illegal to sell or possess in Ohio.

Individual 1978 Fireworks Incidents of Particular Significance

It is often said that history repeats itself, and in the case of fireworks, this certainly holds true. A 12-year-old boy in Memphis, Tennessee, placed firecrackers in a 55-gallon drum; the resulting explosion and fire took his life. The scenario is almost an exact repeat of a 1977 incident, except for the fact that the victim was not a visitor from another state, was a year younger, and the 1977 victim has to suffer with burn scars for the rest of his life, rather than dying. In the 1978 incident, the drum had been in a vacant lot for 1 to 1½ years and contained decomposed tar. When ignited, the drum rocketed over a two-story building, spewing burning tar over the boy and the lot.

An example of the chances that people are willing to take with the explosive power of fireworks occurred in the Chicago, Illinois, suburb of Wilmette on March 17, 1978. One man died and nine others, including five fire fighters, were injured when several explosions rocked a clandestine fireworks factory, operating in a $100,000 residence. In addition to the casualties, the explosions and ensuing fires resulted in over $4 million in damage to surrounding property, including $50,000 in damage to fire department equipment. Prior to the explosions, officials had not suspected that a fireworks factory was operating in this residence in a state that has a model fireworks law. Although this incident did not occur during the Independence Day holiday period and is not included in the statistical tables, it is reported here because of its fire protection significance.

[2] Group 1 states include: Arizona, Connecticut, Delaware, Georgia, Illinois, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio, Rhode Island, Vermont, and West Virginia.

Group 2 states include: Alabama, Colorado, Florida, Indiana, Iowa, Kentucky, Maine, Maryland, Michigan, Oregon, Pennsylvania, Utah, Virginia, and Wisconsin.

For the purpose of this study, the Department of Transportation's definition of Class C fireworks was used. It includes: Roman candles (up to 10 balls), skyrockets with sticks (bottle rockets), helicopter rockets, cylindrical and cone fountains, wheels, torches, dipped sticks or sparklers, firecrackers and salutes (with casing not to exceed 1¼ inches in length and ¼ inch in diameter), and novelties incorporating any of the foregoing.

[3] See "Fireworks: What the State Laws Say," FIRE JOURNAL, Vol. 72, No. 3 (May 1978), p. 50.

Two of the deaths reported in 1978 were indirectly caused by fireworks devices. One occurred near Provo, Utah, when a three-year-old boy fired his cap pistol while his father was filling his motorcycle with gasoline at a service station. The vapors ignited, resulting in a fire that caused first- and second-degree burns over 70 percent of the boy's body and 30 to 40 percent of the father's hands and arms. The boy died, and his father was in serious condition.

In another incident near Fort Lauderdale, Florida, two young men were throwing firecrackers at passing cars from their van when their vehicle swerved into the path of another car, which went out of control and collided with an oncoming dump truck. The accident killed one of the crash victims and injured seven others. Police speculated that a firecracker may have gone off prematurely inside the van; they are still seeking the driver and occupants of the vehicle. This traffic death related to fireworks use is described here because of its significance, but has not been counted as a fireworks fatality in the statistical summary.

A group of Bronx, New York, residents demanded that a Criminal Court judge be removed after he released without bail two men accused of blinding a boy in one eye. The two were charged with planting an M-80 device in the peephole of a door, ringing the doorbell, and lighting the device. As the 13-year-old boy looked into the peephole, the M-80 exploded. Bronx citizens have raised over $60,000 to help pay for the plastic surgery, glass eye, and other medical services needed by the injured boy.

Sprinklers controlled a fire started in a Canton Township, Michigan, department store when a young boy threw a match into a sales display of Class C fireworks. Thirty-three sprinklers operated, limiting the loss to $200,000. At the time of this incident, the Michigan fireworks law banning the sale of Class C devices was suspended as a result of a court challenge by several fireworks manufacturers. Local ordinances concerning fireworks sales were also suspended by this action. Two days after this fire, the state laws were reinstituted.

Two historic sailing ships serving as tourist attractions in the port of Wiscasset, Maine, were seriously damaged by fires started by sparklers. A crowd that had gathered for a fireworks display watched in horror as the ships caught fire and burned. According to fire officials, the youths who tossed the sparklers reportedly "had no intent to burn anything. They just didn't realize the danger."

A July Fourth prank in Huntington, New York, destroyed one car and damaged a municipal drainage system. A firecracker was apparently placed in the gas tank of an automobile, causing an explosion. Escaping gasoline flowed into the storm sewers, where the vapors ignited, resulting in another explosion and fire.

The NFPA thanks the fire marshals who contributed data and professional comments to the preparation of this study. Their continued contributions are essential to a better understanding of fireworks problems and to a reduction of fireworks casualties and property losses. △

Table 1.
Number of Casualties and Fires by Type of Fireworks*

	Deaths		*Major Injuries*		*Minor Injuries*		*Fires*	
Class B Fireworks:	–		21		59		12	
Ashcan/M-80s				15		40		8
Cherry bombs				4		4		–
Firecrackers over 1½ inches				2		15		4
Class C Fireworks:	2		21		215		151	
Bottle rockets		–		12		69		89
Roman candles/fountains		–		3		58		3
Firecrackers, 1½ inches or shorter		1		1		25		7
Sparklers		–		–		20		7
Other Class C devices		1		5		43		45
Homemade Device			7		5		1	
Public Displays			5		11		–	
Firecracker, size not reported			12		116		25	
Unspecified Fireworks			7		129		414	
TOTALS	2		73		535		603	

* From reports to the NFPA by state and local fire marshals.

Table 2. Selected 1978 Fireworks Casualties*

Place	Fireworks Involved	Incident Details	Victim Sex	Victim Age	Injury Details
		DEATHS			
Memphis, Tenn.	Firecracker 1½" long or less	Victim put two firecrackers into 55-gallon drum	M	12	Burns to 75 percent of body, resulting in fatality
Provo, Utah	Toy caps	Cap pistol fired by boy ignited gas fumes while motorcycle being refueled at service station	M	3	Fatal burns
		MAJOR INJURIES			
Bridgeport, Ala.	Bottle rocket	Device hit victim in eye and exploded	M	34	Severe burns to left eye, hospitalized
Bakersfield, Calif.	Improvised device	Part of device hit victim in eye	M	13	Partial or total loss of sight in one eye
Brighton, Colo.	Cherry bomb	Unreported	M	6	Dismemberment of two fingers and thumb
Weston, Conn.	Homemade bomb	Device went off while being constructed	M	17	Most of left hand blown off, shrapnel wound in abdomen
Weippe, Idaho	Smoking floral	Defective device, burned all at once	M	11	Third-degree burns to hand
Downers Grove, Ill.	Fireworks materials	Victim manufacturing fireworks when explosion occurred	M	24	Loss of three fingers, possible loss of left eye, extensive tissue loss on neck; extensive lacerations over body, large loss of blood, facial burns
East St. Louis, Ill.	Firecracker	Device place in pants by another boy	M	6	First-, second-, and third-degree burns to lower back
Peoria, Ill.	Public display	Piece exploded among spectators	M	17	Multiple burns; severe lacerations to back and face, perforated ear drum
Manilla, Iowa	Homemade bomb, ignited by M-80	Device went off in hand	M	21	Right hand amputated above wrist
Bonner Springs, Kans.	Unreported	Unreported	M	18	Blast injury with multiple lacerations to hand; admitted to hospital
Frontenac, Kans.	Bottle rocket	Unreported	M	Unreported	Second- and third-degree burns to thigh
Leavenworth, Kans.	Homemade bomb	Victim making bomb out of pipe and cherry bombs	M	Under 18	Serious hand injury
Paola, Kans.	M-80	Unreported	M	Unreported	Amputation of finger
Salina, Kans.	Bottle rocket	Unreported	M	Under 18	Second- and third- degree burns to thighs and fingers
Chillum, Md.	M-80	Victim attempted to remove fuse after lighting	M	17	Partial dismemberment of thumb and two fingers, burns and lacerations to both hands
Fruitland, Md.	M-80	Victim throwing devices from auto, one prematurely fired	M	23	Right hand amputated at wrist; lacerations and abrasions of chest and face
Jeveina Park, Md.	Cherry bomb	Device blew up before victim could throw it	M	21	Thumb and two fingers blown away
Monrovia, Md.	M-80	Victim held device in hand	F	17	Severe lacerations to right hand, possible dismemberment of finger
Pasadena, Md.	Cherry bomb	Device went off in hand	M	26	Avulsion of two fingers, contusions and lacerations of rest of hand

* Arranged alphabetically by state and city.

(Table continued on next page)

Table 2 (continued)

Place	Fireworks Involved	Incident Details	Victim Sex	Victim Age	Injury Details
St. Clair, Md.	M-80	Device went off in hand after received from other person	M	25	Thumb and two fingers amputated
Martha's Vineyard, Mass.	Unspecified rocket	Unreported	M	10	Severe facial burns; corneal abrasions, hyphemia and retinal injury to left eye, probable loss of sight
North Hampton, Mass.	M-80	Unreported	M	18	Corneal laceration, prolapse of iris, resulting in partial loss of sight
Pontiac, Mich.	Aerial device	Unreported	M	9	Partial loss of sight
Pontiac, Mich.	Firecracker over 1½" long	Unreported	Unreported	42	Traumatic hyphemia, partial loss of sight
Hillcrest, Nebr.	Commercial display piece	Left over from public display; exploded in hand	M	14	First-, second-, and third-degree burns to right hand
Nebraska City, Nebr.	Firecracker	Device exploded in face	M	17	Damage to left eye; hospitalized
Omaha, Nebr.	Firecracker, 1½" long or less	Unreported	M	31	Second- and third-degree burns to arm
Omaha, Nebr.	Unreported—parachute type	Victim investigating unexploded device; went off in face	M	12	Corneal abrasions, underwent surgery for particle removal from eyes, hospitalized
Pender, Nebr.	Bottle rocket	Device hit victim in eye	M	16	Partial loss of sight
Red Cloud, Nebr.	Firecracker over 1½" long	Unreported	M	29	First-, second-, and third-degree burns to right hand
Wennebago, Nebr.	Unreported	Unreported	M	12	Loss of sight
Bayonne, N.J.	M-80	Lit fuse in house, then tried to extinguish it	M	18	Severed all fingers on right hand and three on left hand
Bayonne, N.J.	M-80	Device exploded in hand	M	15	Thumb and index finger amputated
Howell, N.J.	M-80	Victim held device in hand	M	27	Amputation of right index finger
Carlsbad, N. Mex.	Firecracker	Device blew up in face	F	9	Loss of sight
Hobbs, N. Mex.	Bottle rocket	Device thrown into car	M	18	Loss of sight, lacerations to inside of eye
New York, N.Y.	Blockbuster	Firecrackers being thrown from auto, went off in hand when victim tried to throw out lit device that had fallen back into car	M	17	Most of right hand totally destroyed
New York, N.Y.	M-80	Device went off in hand	M	13	Loss of right index finger
New York, N.Y.	M-80	Device placed in peephole of door, exploded in victim's face	M	13	Blinded in one eye
Fargo, N. Dak.	Bottle rocket	Unreported	M	17	Lacerated eyelid, contused pupil, other eye injuries, hospitalized
Grand Forks, N. Dak.	Firecracker	Unreported	M	21	Part of right index finger amputated, hospitalized
Grand Forks, N. Dak.	Firecracker	Device exploded in glass bottle	M	12	Hypothalmia of right eye, hospitalized
Park River, N. Dak.	Homemade bomb	Unreported	M	16	Burns on leg, hospitalized
Valley City, N. Dak.	Firecrackers	Device exploded in pocket	M	11	First-, second-, and third-degree burns to hip; hospitalized

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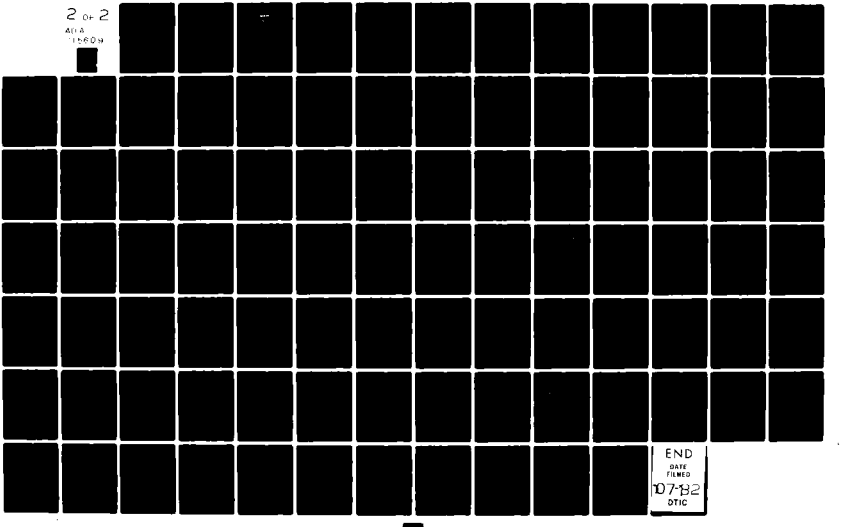

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Table 2. *(continued)*

Place	*Fireworks Involved*	*Incident Details*	*Victim* Sex	Age	*Injury Details*
Cleveland, Ohio	Firecracker	Unreported	M	30s	Blew off part of one finger, hospitalized
Cleveland, Ohio	Firecracker	Unreported	M	17	Burns to hand, shattered bones of fingertips, hospitalized
Maple Hts., Ohio	Firecracker	Device thrown at victim	M	23	Partial loss of sight, eye and facial burns
Broken Arrow, Okla.	Fireworks	Device exploded	M	31	Third-degree burns to face and eye
Broken Arrow, Okla.	Bottle rocket	Device hit victim	M	18	Hemorrhage, admitted to hospital
Choctaw, Okla.	Firecracker	Device exploded in can	M	16	Laceration of iris; admitted to hospital
Del City, Okla.	Bottle rocket	Device hit victim in eye and face	M	16	Blood in anterior chamber of eye, hospitalized
Jennings, Okla.	Flare	Device blew up in face	M	19	Severe corneal abrasions to both eyes
Midwest City, Okla.	Fireworks	Unreported	Unreported	6	Burns to eye; possible eye loss
Skiatook, Okla.	Firecracker	Device flew into eye	M	26	Trauma to left eye, laceration of eyelid, hospitalized
Sperry, Okla.	Bottle rocket	Device exploded in face	F	11	Subconjunctival hemorrhage, hyphemia of right eye
Tulsa, Okla.	Bottle rocket	Device exploded in victim's face	M	41	Subconjunctival hemorrhage, secondary to trauma, left eye
Three Springs, Pa.	Cherry bomb	Device exploded in hand; no fuse in device	M	28	Amputation of thumb and finger; burns and lacerations to rest of right hand
Upper Darby, Pa.	Possible aerial display piece	Victim attempting to light "dud"	M	10-14	Second- and third-degree burns to face, arms, and chest, hospitalized
Memphis, Tenn.	Roman candle or skyrocket	Unreported	M	18	First-, second-, and third-degree burns to over 35 percent of body — face, arms, hands, body
Wichita Falls, Tex.	Bottle rocket	Unreported	M	Under 18	Second- and third-degree burns to abdomen, groin, thigh, hands
Provo, Utah	Toy caps	Cap pistol fired by boy ignited gas fumes while motorcycle being refueled at service station	M	35	Burns to 30–40 percent of hands and arms
Ferndale, Wash.	Cone-fountain	Victim bent over to relight device when it exploded	M	13	Facial and eye burns, partial loss of sight
Seattle, Wash.	Unreported	Device placed in mailbox; mailbox exploded when checked	M	19	Extensive lacerations to left forearm and patella; hospitalized
Seattle, Wash.	Unreported	Firecracker thrown at victim; exploded near his ear	M	12	Concussion, loss of hearing
Washington, D.C.	M-80	Unreported	M	Unreported	Loss of left hand; first, second-, and third-degree burns to right hand
Washington, D.C.	Homemade device	Unreported	M	Unreported	Laceration of right hand, partial loss of sight in left eye
Washington, D.C.	M-80	Unreported	F	Unreported	Laceration of right ear, possible eardrum damage
Washington, D.C.	Skyrocket	Unreported	F	Unreported	Third-degree burns to hand

APPENDIX E

FIREWORKS ACTS - STATE OF N.J.

N.J.S.A. 21 : 2—1 et seq.
N.J.S.A. 21 : 3—1 et seq.

FIREWORKS ACTS

P. L. 1930, c. 42 as amended; effective July 1, 1955
P. L. 1937, c. 51, as amended; effective October 16, 1970

STATE OF NEW JERSEY
DEPARTMENT OF LABOR AND INDUSTRY
DIVISION OF WORKPLACE STANDARDS
OFFICE OF SAFETY COMPLIANCE
TRENTON, N. J.

BRENDAN BYRNE
Governor
State of New Jersey

JOHN J. HORN
Commissioner
New Jersey Department of Labor and Industry

NOTE

This statute reprint is for ready reference only. For official text consult the New Jersey Statutes Annotated.

MANUFACTURE, STORAGE, AND TRANSPORATION OF FIREWORKS

N.J.S.A. 21:2-1 et seq.

P. L. 1930, c. 42 as amended: effective July 1, 1955

ARTICLE 1. DEFINITIONS AND CONSTRUCTION

21:2-1. Short title of act

This chapter may be cited as the "fireworks regulation law".

21:2-2. General definitions

As used in this chapter:

"Fireworks" include any combustible or explosive composition, or any substance or combination of substances, or article prepared for the purpose of producing a visible or an audible effect by combustion, explosion, deflagration or detonation.

"Fireworks factory building" means any building or other structure in which the manufacture of fireworks, other than sparklers, or in which any processing involving fireworks other than sparklers, is carried on.

"Fireworks plant" means and includes all lands, with buildings thereon, used in connection with the manufacturing or processing of fireworks, as well as storehouses located thereon for the storage of finished fireworks.

"Highway" means any public street, public alley, public road, or navigable stream.

"Navigable streams" mean streams susceptible of being used, in their ordinary condition, as highways of commerce, over which trade and travel are or may be conducted in the customary modes, but shall not include streams which are not capable of navigation by barges, tugboats, and other large vessels.

"Railroad" means any steam, electric or other railroad which carries passengers for hire, but shall not include sidings or spur tracks installed primarily for the use of the fireworks plant.

21:2-3. "Dangerous fireworks" defined

"Dangerous fireworks" mean and include the following:

Toy torpedoes containing more than 5 grains of an explosive composition.

Paper caps containing more than .35 grain of explosive composition.

Firecrackers or salutes exceeding 5 inches in length or 3/4 inch in diameter.

Cannons, canes, pistols or other devices designed for use otherwise than with paper caps.

Any fireworks containing a compound or mixture of yellow or white phosphorous or mercury.

Any fireworks that contain a detonator or blasting cap.

Fireworks compositions that ignite spontaneously or undergo marked decomposition when subjected for 48 consecutive hours to a temperature of 167° Fahrenheit.

Fireworks that can be exploded en masse by a blasting cap placed in one of the units or by impact of a rifle bullet or otherwise.

Fireworks, such as sparklers or fusees, containing a match tip, or head, or similar igniting point or surface, unless each individual tip, head or igniting point or surface is thoroughly covered and securely protected from accidental contact or friction with any other surface.

Fireworks containing an ammonium salt and a chlorate.

21:2-4. Application of chapter

Nothing in this chapter shall be construed as applying to the transportation of any article or thing shipped in conformity with the regulations prescribed by the Interstate Commerce Commission, to the military or naval forces of the United States, to the duly authorized militia of the State, to the use and manufacture of signals and fusees necessary for the safe operation of railroads, steamboats or aircraft, or to the use of fireworks for agricultural purposes in connection with the raising of crops.

21:2-5. Explosives laws not repealed

Nothing in this chapter contained shall be deemed to repeal any of the provisions of chapter one of this title.

ARTICLE 2. PROHIBITED FIREWORKS

21:2-6. Dangerous fireworks prohibited

It shall be unlawful to manufacture, sell, transport or use dangerous fireworks within the state.

21:2-7. Fireworks showers in theatres or public halls forbidden

The use of what are technically known as fireworks showers, or of any composition containing potassium and sulphur, in theaters or public halls, shall be unlawful.

ARTICLE 3. MANUFACTURING

21:2-8. Factory buildings; location of

No factory building shall be situated nearer than two hundred feet from any inhabited building or to any highway or to any railroad, nor nearer than fifty feet from any building used for the storage of explosives or fireworks, nor nearer than twenty-five feet to any other factory building. This section shall not apply to factory buildings existing on March twenty-fifth, one thousand nine hundred and thirty, in fireworks plants then in operation.

21:2-9. Storage buildings; location of

No building in a fireworks plant used for the storage of finished fireworks, other than those containing only sparklers, shall be situated nearer than three hundred feet from any building not used in connection with the manufacture of fireworks, nor from any highway, railroad or navigable stream, nor within three hundred feet of the property line of the fireworks plant. This section shall not apply to such storehouses existing on March twenty-fifth, one thousand nine hundred and thirty.

21:2-10. Fences, gates and watchmen

All fireworks plants shall be inclosed on all sides by substantial fences and all openings to such inclosures shall be fitted with suitable gates, which, when not locked, shall be in charge of a competent watchman who shall have charge of the fireworks plant when it is not in operation.

21:2-11. Fire protection

Fireworks plants and all buildings situated within fireworks plant inclosures, shall be equipped with suitable fire protection,

commensurate with the hazard involved, to protect life and property from direct burning and exposure. Such fire protection shall be installed as directed by the commissioner of labor.

21:2-12. Precautions against fire

No stoves, exposed flame or electrical heating devices shall be used in any part of any fireworks plant, except in the boiler room or machine shop if no fireworks or chemicals are stored therein. All parts of the buildings in fireworks plants shall be kept clean, orderly and free from accumulations of dust or rubbish.

21:2-13. Storage in factory buildings prohibited

Fireworks in the finished state shall not be stored in buildings where fireworks are in process of manufacture.

21:2-14. Character of fireworks which may be manufactured

No fireworks may be manufactured except such as shall be approved for transportation by the regulations of the interstate commerce commission.

21:2-15. Marking packages

Each outside package of fireworks shall bear upon the outside thereof the words "Fireworks–Handle Carefully–Keep Fire Away" in letters not less than 7/16 inch in height, and in addition shall show the name of the fireworks manufacturer.

21:2-16. Uniforms of employees

All factory employees in fireworks plants employed in loading, filling or handling of charged fireworks in process of manufacture, or of explosive composions, shall be clothed in suitable uniforms to be approved by the department of labor.

21:2-17. Matches, liquor and narcotics

No employee or other person shall enter or attempt to enter any fireworks plant with matches or other flame-producing devices, nor with liquor or narcotics in his or her possession or control, nor while under the influence of liquor or narcotics, nor partake of intoxicants or narcotics while in the plant.

21:2-18. Smoking and carrying matches in fireworks plant

No person shall smoke nor carry matches, a lighted cigar, cigarette or pipe within any room or inclosed place or upon any part of a fireworks plant.

21:2-19. Warning signs

All fireworks plants shall be properly posted with "Warning" and "No Smoking" signs.

21:2-20. Containers for matches at entrances

It shall be the duty of the superintendent, foreman or other person in charge of any fireworks plant to provide safety containers for matches at all main entrances of the plant, where all matches in the possession of all persons shall be deposited before entering the plant inclosure.

21:2-21. Inspection

On receipt of an application to operate a fireworks plant, the commissioner of labor shall cause an inspection to be made of the premises described in the application for the purpose of determining whether they conform to the provisions of this chapter.

21:2-22. Certificate of registration; posting

If the conditions in the fireworks plant conform to the provisions of this chapter, the commissioner of labor shall issue a certificate of registration which shall be protected under glass and posted in a conspicuous place near the entrance to the fireworks plant. The certificate shall continue in force until revoked.

21:2-23. Denial of certificate; reasons filed

If the commissioner denies an application for a certificate of registration, he shall file in his office a statement of the reasons therefor and furnish the applicant with a copy of the same.

21:2-24. Revocation of certificate

The commissioner may revoke a certificate of registration if the fireworks plant is not maintained in accordance with the provisions of this chapter applicable thereto.

21:2-25. Statement of reasons for revocation

If a certificate is revoked the commissioner shall file in his office a statement of the reasons therefor and furnish a copy of same to the owner and persons operating the fireworks plant. No fireworks plant shall be operated after revocation of its certificate of registration until such fireworks plant complies with this chapter, and a new certificate is issued.

21:2-26. Records and duplicate of certificates

A record of the certificates of registration issued and revoked shall be kept on file in the office of the commissioner, and a duplicate sent to the chief of the fire department of each community, in which a fireworks plant is located.

21:2-27. Indemnity bond

The owner or operator of any fireworks plant, within sixty days after demand therefor in writing by the comminssioner of labor, unless exempted therefrom as hereinafter provided, shall file and keep on file with the department of banking and insurance of the state, an indemnity bond payable to the state of New Jersey in such sums as may be determined by the commissioner of labor and set forth in such demand, not in excess of fifty thousnad dollars nor less than ten thousand dollars, with surety or sureties satisfactory to such department, conditioned for the payment of all final judgments that may be rendered against such owner or operator for damages caused to persons and property by reason of any explosion at such fireworks plant of the product or component part or parts thereof there manufactured, processed or handled.

21:2-28. Exemption from filing bond

Any fireworks plant owner or operator desiring to be exempted from filing such bond may make application to the state department of banking and insurance, showing his financial ability to discharge all such judgments to the amount of the bond required by the commissioner of labor that may be entered against him, whereupon such department, if satisfied with the financial ability of the applicant, shall, by written order, exempt the applicant from the filing of such bond, and the department of banking and insurance may from time to time require further statements from the applicant showing his financial ability and, if dissatisfied therewith, may in its discretion revoke such exemption, and require the filing of such bond.

ARTICLE 4. STORAGE AND SALE

21:2-29. Prohibited places of storage or sale

It shall be unlawful to store or sell fireworks:

a. In any building where paints, oils or varnishes are manufactured or kept for use or sale, unless paints, oils and varnishes are in original unbroken containers.

SALE AND PUBLIC DISPLAY OF FIREWORKS

N.J.S.A. 21:3-1 et seq.

P.L. 1937, c. 51 as amended; effective October 16, 1970

21:3-1. Sale, use, etc., declared against public health, safety and welfare

The sale, exposure for sale, use, distribution or possession of fireworks or pyrotechnics in the state of New Jersey, except as hereinafter provided, is hereby declared by the legislature to be against the public health, safety and welfare of the people of the state of New Jersey.

21:3-2. Sale, possession or use prohibited; exceptions

It shall be unlawful for any person to offer for sale, expose for sale, sell, possess or use, or explode any blank cartridge, toy pistol, toy cannon, toy cane or toy gun in which explosives are used; the type of balloon which requires fire underneath to propel the same; firecrackers; torpedoes; skyrockets, Roman candles, bombs, sparklers or other fireworks of like construction, or any fireworks containing any explosive or infammable compound or any tablets or other device commonly used and sold as fireworks containing nitrates, chlorates, oxalates, sulphides of lead, barium, antimony, arsenic, mercury, nitroglycerine, phosphorus or any compound containing any of the same or other explosives, or any substance or combination of substances, or article prepared for the purpose of producing a visible or an audible effect by combustion, explosion, deflagration or detonation, other than aviation and railroad signal light flares, except (a) that it shall be lawful for any person to offer for sale, expose for sale, sell, possess or use, or explode any toy pistol, toy can, toy gun, or other device in which paper or plastic caps containing .25 grain or less of explosive compound per cap are used, providing they are so constructed that the hand cannot come in contact with the cap when in place for use, and toy pistol paper or plastic caps which contain less than .20 grain of explosive mixture per cap and (b) as in this chapter further provided.

21:3-3. Permits for public displays; application; restrictions

The governing body of any municipality, other than a county, notwithstanding any of the provisions of this chapter to the contrary, may, upon application in writing, upon the posting of a suitable bond, grant a permit for the public display of fireworks by municipalities, religious, fraternal or civic organizations, fair associations, amusement parks, or other oganizations or groups

"Fireworks Danger Keep Fire Away". The lettering on these signs shall not be less than three inches in height.

21:2-32. Care while driving, loading and unloading vehicles

It shall be unlawful for any person in charge of a vehicle containing fireworks to smoke in, upon or near such vehicle, to drive the vehicle while intoxicated or under the influence of narcotic drugs, to drive the vehicle in a careless or reckless manner, to load or unload such vehicle in a careless or reckless manner, or to make unnecessary stops.

21:2-33. Metals in vehicles carrying fireworks

It shall be unlawful for any person to place or carry or cause to be placed or carried, any metal tool or other similar piece of metal in the bed or body of a vehicle containing fireworks, unless contained in a box or other container approved by the commissioner of labor or his authorized representatives.

21:2-34. Blasting caps, exploders and detonators not to be carried with fireworks

It shall be unlawful for any person to place or carry, or cause to be placed or carried, in the bed or body of any vehicle containing fireworks, any exploders, detonators, blasting caps or other similar explosive material, or to carry in or upon such vehicle any matches or any other flame-producing device, except safety matches carried in a container approved by the commissioner of labor or his authorized representatives.

ARTICLE 6. PENALTIES

21:2-35. Money penalties; imprisonment; actions

Any person who fails to comply with or violates any of the provisions of this chapter shall be liable to a penalty of not less than twenty-five dollars ($25.00) nor more than ten thousand dollars ($10,000.00) or imprisonment not exceeding one year, or both, in the discretion of the court. The money penalties herein provided for shall be sued for and recovered in a civil action by and in the name of the Commissioner of Labor.

b. In any building where matches (other than approved safety matches), rosin, turpentine, gasoline, or other highly inflammable substances, or substances which may generate inflammable vapors are used, stored or kept for sale;

c. In any building where stoves or exposed flame are used in the part of the building where fireworks are stored or offered for sale.

21:2-29.1 Permit to store or sell fireworks for use for agricultural purposes

It shall be unlawful to store or sell fireworks, designed or intended to be used for agricultural purposes as pest-control bombs in connection with the raising of crops, without first obtaining from the Commissioner of Labor and Industry a permit to store or sell such fireworks.

The Commissioner of Labor and Industry is authorized to issue such permits subject to rules and regulations to be prescribed by him and upon the payment of the required fees.

The said rules and regulations shall be such as will reasonably protect the safety of the public by limiting the quantities to be stored in any one place and by providing safeguards against the danger of explosion and damage thereby to persons and property.

In prescribing said rules and regulations, the commissioner shall consult and co-operate with the State Department of Agriculture.

The fee for issuing any such permit shall be fixed by the commissioner according to a scale of quantities and locations prescribed by him, but in no case shall such fee exceed $100.00.

21:2-30. Smoking not allowed in place of sale

No smoking shall be allowed in any building where fireworks are offered for sale. Over each entrance to such a store a sign in large letters shall be displayed reading "Fireworks For Sale – No Smoking Allowed".

ARTICLE 5. TRANSPORTATION

21:2-31. Signs on vehicles

Every vehicle carrying fireworks upon the public highway shall display signs on both sides and the rear of the vehicle reading

of individuals, approved by the governing body of such municipality to whom the application is made, and the governing body is authorized by resolution, to grant such permission when such display is to be handled by a competent operator, to be approved by the chiefs of the police and fire departments of the municipality. Such display shall be of such a character, and so located, discharged, or fired, as in the opinion of the chiefs of the police and fire departments, after proper inspection, shall not be hazardous to property or endanger any person or persons. After such permit shall have been granted, sales, possession, use and distribuution of fireworks for such display shall be lawful for that purpose only.

21:3-4. Contents of applications for permits; approval of storage place; permit not transferable

All such applications for permits shall set forth the date, the hour, place of making such display, and place of storing fireworks prior to the display and, further, the name or names of the person, persons, firm, partnership, corporation, association or group of individuals making the display; the name of the person, or persons, in charge of the igniting, firing, setting-off, exploding or causing to be exploded such fireworks. The location of the storage place shall be subject to the approval of the chief of the fire department of the municipality. No permit granted hereunder shall be transferable.

21:3-5 Surety by licensee

The governing body of the municipality shall require surety which may be cash, government bonds, personal bond, or other form of insurance in a sum of not less than twenty-five hundred dollars ($2,500.00), conditioned for the payment of all damages, which may be caused either to a person or persons or to property, by reason of the display so as aforesaid licensed, and arising from any acts of the licensee, his agents, employees or subcontractors. Such surety shall run to the municipality in which the license is granted, and shall be for the use and benefit of any person, persons, or the owner or owners of any property so damaged, who is or are authorized to maintain an action thereon, or his or their heirs, executors, administrators, successors or assigns.

21:3-6. Copy of application and permit forwarded to department of labor

A duplicate copy of the application and of the permit granted shall be forwarded to the bureau of explosives of the department of labor by the governing body granting such permit and such copies shall be kept on file in the department, subject to public inspection.

21:3-7. Effect on existing laws; exceptions

Nothing in this chapter contained shall be construed to interfere with the provisions of chapter 2 of this title where the provisions thereof are not inconsistent with the provisions of this chapter, nor shall anything in this chapter contained be construed to prohibit any manufacturer, wholesaler, dealer or jobber from selling at wholesale such fireworks to municipalities, religious, fraternal or civic organizations, fair associations, amusement parks, or other organizations or groups of individuals authorized to possess and use fireworks under this chapter; or the sale of any kind of fireworks, provided the same are to be shipped directly out of the state; or the sale or use of blank cartridges for a show or theatre, or for signal purposes in athletic sports, or by railroads for signal purposes, or for the use by the militia, or construed to prohibit the manufacture and sale of aviation and railroad light flares. Any provision of any law in this state inconsistent with any provision of this chapter is hereby repealed.

21:3-8. Penalties for violations

Any person violating any of the provisions of this chapter shall be subject to a penalty: For selling, offering or exposing for sale, or having in possession with intent to sell any fireworks as herein mentioned, the sum of hundred dollars for each offense, or by imprisonment in the county jail for a period of ninety days, or by both such fine and imprisonment in the discretion of the court having jurisdiction, and for using, discharging or causing to be discharged, ignited, fired, or otherwise set in action, or having in possession any fireworks, a sum not exceeding one hundred dollars for each offense.

21:3-9. Enforcement by municipalities

The municipalities of this State, and the Department of Labor and Industry, are hereby charged with the enforcement of all of the provisions of this chapter.

APPENDIX F

CALIFORNIA ADMINISTRATIVE CODE - TITLE 19

(Register 76, No. 35—9-18-76)

Article 7. Classification of Fireworks

986. Classification. (a) **General.** No fireworks or pyrotechnic devices shall be imported, sold, or offered for sale prior to examination and classification by the State Fire Marshal.

(b) **Tests and Examinations.** Fireworks of all types, including "model rocket engines," and "special effects materials," shall be classified in accordance with the standards established by the Department of Transportation (D.O.T.). Classification shall be made pursuant to the evaluation of reports of tests and examinations conducted by the Bureau of Explosives or by any other laboratory approved for such testing and examination by the State Fire Marshal.

(c) **Restriction.** The classification of an item shall not be construed as conferring classification to any other item without the approval of the State Fire Marshal, nor shall the trade name of the item be changed without notifying the State Fire Marshal 30 days prior to such change.

(d) **Unclassified Fireworks.** Fireworks or pyrotechnic devices that have not been classified or which do not bear the label of registration and classification of the State Fire Marshal shall not be used, stored, or sold for use within this state.

Exception: Special Effects items developed and compounded on location for single time usage.

986.1. Submission for Classification. Fireworks or pyrotechnic devices shall be submitted to the State Fire Marshal for classification by licensed manufacturers, wholesalers, or importers/exporters only.

Exception: All fireworks or pyrotechnic devices produced by non-licensed manufacturers may be submitted for classification upon written application to the State Fire Marshal on forms provided by him. The application shall be accompanied by a fee of ten dollars ($10) for each item of identical size and design of a given lot or batch, provided that the lot or batch is identifiable by a code, serial number, shipment lot, case cargo number, etc. A separate application and fee shall be submitted for each lot or batch. The seal of the State Fire Marshal and the wholesaler's or importer's registration number shall not be imprinted on the label until the lot or batch has been examined and classified.

986.2. Test Samples. Live samples of each item of fireworks which are to be examined, classified and labeled as "safe and sane" must be submitted to the State Fire Marshal for test. The number of samples necessary shall be determined by the State Fire Marshal and in no case shall be less than ten. The number of live samples to be submitted for examination, classification and labeling as "agricultural wildlife," "dangerous" and "emergency signaling devices" shall also be determined by the State Fire Marshal, however, in no case shall the number be less than three.

986.3. Chemical Analysis. The request for classification of all fireworks as "safe and sane" fireworks, shall be accompanied by a notarized qualitative chemical analysis showing every chemical and substance used in the manufacture of such fireworks. Such qualitative analysis shall be made by the manufacturing licensee.

Chemists or chemical testing engineers outside the boundaries of the United States shall be certified by the American Consulate within the chemists or chemical testing engineers country.

986.4. Re-tests. Licensees shall advise the State Fire Marshal of any change in quality, content, or construction of any fireworks article registered by them and shall resubmit such articles for re-test and classification.

986.5. Revocation. The registration and classification may be revoked by the State Fire Marshal if he finds that the material being marketed is not the same as that submitted for classification and registration or when such fireworks or their labeling does not conform to the provisions of these regulations.

986.6. Specifications. The provisions of this section shall apply to all handle goods, stick, dowel, spike and California candle fireworks having a stick dowel or inside diameter greater than ⅛ inch and other devices as noted.

Handle goods are exempt from compliance with the provisions of subsections (a), (d) and (e) of this section if they incorporate all of the following features: (1) a soft, crushable type paper tube, (2) an inside diameter of ⅜ inch or less, (3) 3 inches or less of combustible chemical composition, and having an overall length not exceeding 12 inches without any choke or other muzzle restriction.

(a) The chemical composition tubes or cases of all stick or handle fireworks items, whether spike or dowel, excepting colored port fire or flares, shall not exceed 9 inches in length or have an inside diameter greater than ⅝ inch and shall be convolute or spiral wound of chip board or other paper having equivalent strength and shall be well glued. The above dimensions do not include the stick, dowel or tubular handles of such items.

The chemical composition tubes in all fireworks items shall be sealed in a manner that prevents leakage of the pyrotechnic composition during shipping, handling, or normal operation and shall be constructed in a manner to allow functioning without burnout or blowout.

(b) The use of any choke or other muzzle restriction in any stick or handle fireworks item, whether spike or dowel or California candle is prohibited.

(c) Compositions in all devices shall be designed and manufactured to prevent loosely compacted charges. Pyrotechnic compositions shall not discharge a flame longer than 8 inches or throw sparks farther than 10 feet from the composition tube muzzle. Handle goods shall not throw sparks further than 6 feet from the composition tube muzzle.

(Register 77, No. 46—11-5-77)

(d) Clay base shall have a minimum finished thickness of ½ inch and shall be formed in place inside the tube. In no case shall the final composition charge and the clay be formed in a combined operation. All clay used as clay base shall be sufficiently moistened to insure permanent effective adhesion to the inside of the tube or case.

(e) Fireworks devices which are intended to be hand-held and are so labeled shall incorporate a handle at least 4 inches in length. Handles shall remain firmly attached during transportation, handling and full operation of the device, or shall consist of an integral section of the device at least 4 inches below the pyrotechnic chamber.

Spikes and dowels shall be inserted into the chemical composition tubes a minimum distance not less than 25% of the length of tubes 6 inches or less in length and not less than 2 inches into tubes over 6 inches long. They shall be cemented firmly in place against the clay base. There shall be no void space within the chemical composition tube.

Spikes provided with fireworks devices shall protrude at least 2 inches from the base of the device and shall have a blunt tip not less than ⅛ inch in diameter or ⅛ inch square.

(f) All fuse or match of every type and kind of fireworks items shall be securely fixed in contact with the composition charge to insure against accidental loss. Each fuse and match shall be capable of either supporting the combined weight of the fireworks item plus eight ounces dead weight, or double the weight of the item without separation from the fireworks article.

Fuses on all items shall burn for not less than 3 seconds but not more than 6 seconds.

Fuses on all items shall be treated or coated in such a manner as to reduce the possibility of side ignition. The fuse on devices such as "ground spinners" that require a restricted orifice for proper thrust and contain less than 6 grams of pyrotechnic composition are exempt from this requirement.

Fireworks items sold or offered for sale at retail which are not enclosed in sealed packages, shall have their fuses or other igniting means protected in a manner approved by the State Fire Marshal to provide reasonable protection from unintentional ignition.

(g) All pyrotechnic devices having a base shall provide stable support to maintain the item in a vertical position when firing. When bases are added to the device, they shall be firmly and evenly glued in place.

Bases shall have a dimension not less than ⅓ the length of the pyrotechnic device except that bases on single pyrotechnic items 12 inches or less in length may have a base not less than 3 inches. Pyrotechnic items provided in multiples shall have a base with a dimension not less than ⅓ the length of the longest item attached to the base.

(h) Appearance of any fireworks items in close resemblance to those articles classified by statute as "dangerous fireworks" shall constitute sufficient grounds for their classifications, by the State Fire Marshal, as "dangerous fireworks." Special reference is intended, though not by way of limitation, to cherry bombs and sky rockets and other fireworks which normally explode or rise in the air during discharge.

(i) Pinwheels shall be limited to a maximum overall diameter of 15 inches, shall be substantially constructed and all driver gerbs, firepots and other elements shall be firmly fixed to the wheel.

Drivers shall be securely attached to the device so that they will not come loose in transportation, handling, and normal operation. Wheel devices intended to operate in a fixed location shall be designed in such a manner that the axle remains attached to the device during normal operation.

(j) Smoke devices shall conform to the following:

(1) Smoke devices shall be so constructed that they will neither burst nor produce external flame (excluding the fuse and first fire upon ignition).

(2) Smoke devices shall not be of such color or configuration so as to be confused with dangerous fireworks, such as firecrackers or cherry bombs.

(3) Smoke devices shall not incorporate plastic as an exterior material if the pyrotechnic composition would come in direct contact with the plastic.

History: 1. Amendment of subsections (e) and (f) filed 11-4-77; effective thirtieth day thereafter (Register 77, No. 45).

986.7. Party Poppers. (a) General. Party Poppers, as defined in Section 980, to be sold at retail without benefit of a State Retail sales License, shall be submitted to the State Fire Marshal for test and classification in accordance with this Section.

(b) In addition to the tests required by this Section, Party Poppers shall conform to the following:

(1) The device shall contain not more than 0.25 grains of explosive.

(2) The device shall not contain any materials specified in Section 12505 of the Health and Safety Code.

(3) The tube casing or body shall be constructed so as to eliminate any emission into the hand of the user.

(4) The streamers or other fill material shall be fire retardant when tested in accordance with Section 986.7(c).

(5) Every individual fireworks item shall bear the classification label of the State Fire Marshal, including the manufacturer's or wholesaler's registration number and the words "party poppers" shall apppear in legible print on such label.

(6) The body of every party popper shall have in legible print operating instructions and warning labels as may be required by the State Fire Marshal.

(c) The testing of Party Poppers shall require the submission of a minimum of six samples. The streamers or other fill material from all of the six samples shall be arranged in a loose pile and subjected to the flame from a common paper match for not less than 5 seconds. The test material shall not continue to burn or smolder for more than 2 seconds after the match has been removed.

If the streamers or other fill material fail the above tests, the device shall be rejected and classified as dangerous.

History: 1. Amendment of subsections (b)(1), (b)(4) and (c) filed 11-4-77; effective thirtieth day thereafter (Register 77, No. 45).

(Register 77, No. 45—11-5-77)

Article 8. Labeling

987. Labeling. All fireworks or pyrotechnic devices shall be classified and labeled in accordance with the provisions of this article. In addition, the license or registration number of the registrant must appear on such label.

Exception: Special Effects items developed and compounded on location for single time usage.

Labels bearing the State Fire Marshal's seal of registration showing the classification and registration number shall be attached to each package or item of fireworks offered for sale. Safe firing instructions shall be legibly printed on each item or package and all fireworks items which are not specifically designed to be held in the hand while firing shall prominently display the wording "DO NOT HOLD IN HAND".

Every package or carton, and every individual item of unpackaged fireworks and every carton or shipping container in which they are packed, shall bear the Seal of Registration of the State Fire Marshal and the license number of the registrant. Immediately above such seal shall appear in legible type the classification of such fireworks. Such labeling may be by stamp, stencil or printing, or by a firmly attached printed adhesive label.

987.1. Instruction Labeling. (a) In addition to the labeling provisions of Section 987, the following listed fireworks or similar type devices shall be labeled as indicated herein. Any fireworks device not required to have a specific label as indicated shall carry a warning label indicating to the user where and how the item is to be used and necessary safety precautions to be observed. The use of the word "close" is optional.

(1) Fountains, *Spike Fountains, and Whistles.*

Warning (or Caution)
Emits Showers of Sparks

Use only under (close) adult supervision
For outdoor use only
Place on level surface
Stick firmly in ground in an upright position (Spike items only)
Light fuse and get away

(2) Handle Fountains, California Candles

Warning (or Caution)
Emits Showers of Sparks

Use only under (close) adult supervision
For outdoor use only
Hold in hand at bottom of tube or handle
Point away from body so that neither end points toward body

(3) Sparklers

(either on the side, front, back, top, or bottom panel)
Warning (or Caution)

Use only under (close) adult supervision
For outdoor use only

Do not touch glowing wire
Hold in hand with arm extended away from body
Keep burning end or sparks away from wearing apparel or other flammable material

(4) Wheels

Warning (or Caution)
Emits Showers of Sparks

Use only under (close) adult supervision
For outdoor use only
Attach securely by means of a nail through the hole
Light fuse and get away

(5) Toy smoke devices and flitter devices

Warning (or Caution)
Flammable (or Emits Showers of Sparks, if more descriptive)

Use only under (close) adult supervision
For outdoor use only
Do not hold in hand
Light fuse and get away

History: 1. Amendment filed 11-4-77; effective thirtieth day thereafter (Register 77, No. 45).

Article 9. Seal of Registration

988. Description. The State Fire Marshal's Seal of Registration required by these regulations shall conform to the provisions of this Article. The Seal of Registration shall be applied to all classified fireworks and pyrotechnic devices by a licensed manufacturer, importer, exporter or wholesaler, and shall indicate whether the fireworks or device is "Safe and Sane," "Dangerous," "Agricultural," "Model Rockets," "Emergency Signaling Device," or "Exempt."

The licensee registration number shall appear in the boxes below the seal as illustrated in this article.

988.1. Unlawful Use. No person or concern shall produce, reproduce or use the Seal of Registration in any manner or for any purpose except as herein provided.

988.2. Permissive Use. (a) Licensed manufacturers, importer/exporters, or wholesalers may, after review by the State Fire Marshal, use the Seal of Registration bearing their license registration number for any of the following:

(1) Printed matter including advertising and copy for publication.
(2) Letterhead, personal cards and similar stationery.
(3) Stencils for any of the foregoing.

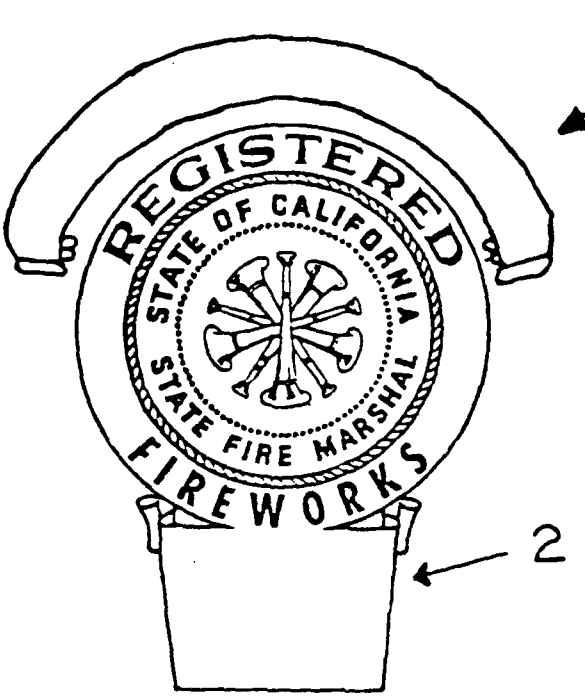
988.3. Reproduction. No person shall reproduce the fireworks Seal of Registration which does not conform to the approved copy as issued at the time the license and registration number is granted. Such reproductions shall be made in accordance with the instructions for use thereon. No alteration shall be made to the original and copy, or to any reproduction of the Seal of Registration as approved by the State Fire Marshal.

(Register 76, No. 38—9-18-76)

988.4. **Registration Numbers.** Before reproduction of the Seal of Registration, there shall be inserted in the box provided, the registration number assigned by the State Fire Marshal to designate the licensees category. The category shall be designated by the capital letter proceeding the registration number as follows: "M" for manufacturing, "I/E" for importer/exporter, "W" for wholesaler. The designation for model rockets and signaling devices shall be as follows: "MR" for model rockets, "L" for land signaling devices, "S" for sea signaling devices and "A" for air signaling devices. Signaling devices intended for more than one function shall use all of the appropriate letters.

988.5. **Cease Use Order.** No person or concern shall continue use of the Seal of Registration in any manner or for any purpose after receipt of a notice in writing from the State Fire Marshal to discontinue such use.

STATE FIRE MARSHAL'S SEAL OF REGISTRATION



1 Enter one of of the appropriate titles listed below:
(a) Dangerous
(b) Safe & Sane
(c) Agricultural
(d) Model Rocket Engine
(e) Emergency Signaling Device
(f) Exempt

2 Enter the State Fire Marshal Registration Number

(Register 76, No. 38—9-18-76)

Article 10. Storage

989. General. Storage of fireworks shall be free from any condition which increases or may cause an increase of the hazard or menace of fire to a greater degree than customarily recognized as normal by persons in the public service of preventing, suppressing, or extinguishing fire; or which may obstruct, delay, or hinder, or may become the cause of any obstruction, delay, or hindrance, to the prevention or extinguishment of fire.

989.1. General Safety. (a) All fireworks and special effects materials shall be stored in compliance with the provisions of these regulations.

Exception: The authority having jurisdiction may permit safe and sane fireworks which are being offered for retail sale to be stored in any approved manner.

(b) The authority having jurisdiction may permit the storage of public display fireworks and special effects material in any approved manner when such items are on the firing site and are for immediate use.

989.2. Construction of Class I Magazines. Class I magazines shall be of bullet-resistant construction. Plans shall be submitted to the fire authority having jurisdiction for approval prior to construction.

(a) Use of the following materials and methods of construction shall be evidence of compliance with this requirement.

(1) Masonry units not less than 8 inches in thickness with all hollow spaces filled with weak cement, well tamped sand, or equivalent material, or,

(2) Reinforced concrete not less than 6 inches in thickness, or,

(3) Steel walls of minimum No. 14 Manufacturers Standard Gage (.0747 inches) to No. 6 Manufacturers Standard Gage (.1943 inches) may be used, provided there are 2 layers spaced at least 6 inches apart with all hollow spaces filled with weak cement, well tamped sand, or equivalent material, or,

(4) One layer of No. 6 Manufacturers Standard Gage (.1943 inches), or heavier, steel lined on the interior with a minimum of 4 inches of wood, or,

(5) Two layers of No. 6 Manufacturers Standard Gage (.1943 inches), or heavier, steel spaced a minimum ½ inch apart and lined on the interior with a minimum of 2 inches of wood, or,

(6) Two layers of wood, at least 1⅝ inches in thickness each, spaced a minimum 4 inches apart with the hollow space filled with weak cement, well tamped sand, or equivalent material.

(7) Wood used shall conform to the following:

(A) Wood shall be of tongue and grooved lumber or plywood.

(B) Wood shall be covered, on the exterior side, with metal to provide protection against flying embers and sparks.

(b) Doors shall be of bullet-resistant construction and shall be equipped with substantial and adequate means of locking. Locking devices shall be provided with protectors to minimize the possibility of tampering.

(c) Floors of magazines shall be securely fastened in place and shall be capable of withstanding the loads imposed.

(d) Roofs shall be securely fastened in place and they shall be bullet-resistant, if required by the fire authority having jurisdiction.

(e) Ventilation openings shall be screened to prevent the entrance of sparks and they shall be protected in a manner that will maintain the bullet-resistance of the magazine.

(f) Magazine interiors shall be of a smooth finish without cracks or crevices with all nails, screws, bolts and nuts countersunk. Exposed metal capable of emitting sparks shall be covered so as not to come in contact with packages of explosives.

(g) No Class I magazine, or portion thereof, shall be located under a high voltage power line (750 volts, or more). For the purpose of this section, "under" shall include an open space of not less than the height of the power line from the ground at right angles to the walls of the magazine.

(B6206-T24 CAC)

(h) Roofs of building-type magazines located where it is possible to fire a bullet directly through the roof into the magazine at such an angle that the bullet would strike the explosives therein, shall be constructed according to this section or equipped with a sand tray located at the eaves line and covering the entire magazine ceiling area except that necessary for ventilation. Sand in the sand tray shall be maintained at a depth of not less than 4 inches.

(T8-5254-T24, CAC)

989.2.1. **Signs.** Class I magazines shall be provided with signs on each side, reading "EXPLOSIVES—KEEP OUT" in RED letters not less than 4 inches in height having a stroke not less than ⅝ inch. The lettering shall be imposed upon a WHITE background. Location of the signs shall be within 100 feet of the magazine and shall be so placed that a bullet through a sign will not strike the magazine.

989.3. **Construction of Class II Magazines.** (a) **General.** Class II magazines shall be of wood, metal, or fiber, or a combination thereof, or any equivalent construction as approved by the fire authority having jurisdiction. Class II magazines shall be constructed as follows:

(1) Two inch nominal thickness hardwood, covered on the exterior with a minimum of No. 20 Manufacturers Standard Gage Steel, or,

(2) Two thicknesses of 1 inch thick plywood, covered on the exterior with a minimum of No. 20 Manufacturers Standard Gage Steel, or,

(3) Fiber, equal in strength to the wood as specified in Sections 989.3(1) and 989.3(2), covered on the exterior with a minimum of No. 20 Manufacturers Standard Gage Steel, or,

(Register 76, No. 38—9-18-76)

(4) A minimum of No. 14 Manufacturers Standard Gage Steel, lined on the interior with 1 layer of 1 inch thick plywood, or equivalent material.

All corners of Class II magazines shall be provided with substantial bracing or shall be of rabbeted joint construction. The interior shall have a smooth finish without cracks or crevices with all nails, screws, bolts and nuts countersunk. Exposed metal shall be covered so as not to come into contact with packages of explosives.

(b) **Covers and Locking.** Covers for Class II magazines shall be provided with substantial means of locking. Openings shall be kept locked except during the placement or removal of explosives. Magazines left at locations, where no one is in attendance, shall be secured in place.

(c) **Posting and Color.** Class II magazines shall be painted RED and shall bear lettering in WHITE, on all sides and the top, at least 3 inches high with a ½ inch stroke, which reads, "EXPLOSIVES."

Note: Smaller lettering than that specified may be used, when the size of the magazine prohibits use of the larger lettering.

(d) **Ventilation.** Where necessary due to climatic conditions, Class II magazines shall be properly ventilated.

(e) **Removal Provisions.** Class II magazines when located in warehouses, wholesale and retail establishments, or other approved locations, shall be provided with substantial wheels or casters to facilitate easy removal in the case of fire.

989.4. **Smoking.** Smoking shall be prohibited and "No Smoking" signs shall be provided in accordance with Section 995.4.

989.5. **Supervision.** Fireworks storage shall be under the care and control of a person not less than 18 years of age. Such person shall be responsible for understanding and maintaining safe conditions and storage as required by statute and these regulations.

989.6. **Personnel.** It shall be the responsibility of the employer to instruct all employees who handle fireworks in any capacity, in the hazards of fireworks and explosives and with these rules and safety precautions governing fireworks and explosives.

Article 11. Shipping and Transportation

990. **General.** (a) A permit for the transportation of fireworks shall not be required of any licensee when transportation is conducted upon the approved routes as provided in Sections 31616 of the Vehicle Code and the vehicle used conforms to Sections 27903 and 31610 of the Vehicle Code. The type of fireworks permitted to be transported without a permit shall be limited to the class covered by the license.

(b) When transporting intrastate, manufacturers may transport for delivery only to licensed wholesalers.

(c) When transporting intrastate, wholesalers may transport for delivery only to licensed retailers or retailers operating under a permit, licensed public display operators, or other licensed wholesalers.

(d) Except for unclassified fireworks being transported to the State Fire Marshal for classification or being transported for out-of-state delivery, only classified fireworks shall be transported within this state.

990.1. **Permit Required.** On other than approved explosive routes, a permit shall be obtained for the transportation of fireworks from each fire authority having jurisdiction or from the fire authority having jurisdiction at the point of origin and the State Fire Marshal.

An application for a transportation permit shall be submitted to the State Fire Marshal for the transportation of any quantity of fireworks when the shipment originates within this state and is to be transported out of this state. Prior to issuance of the permit, approval shall be obtained from the local fire authority having jurisdiction at the point of origin of the shipment.

990.2. **Permits Not Required.** (a) Permits shall not be required under any of the following conditions:

(1) Persons holding a special effects pyrotechnic operator's license transporting special effects fireworks.

(2) The transportation of classified and labeled safe and sane fireworks and registered emergency signaling devices by any person.

(3) Public carriers or private carriers holding a valid license or permit issued pursuant to the provisions of Division 14 (commencing with Section 31600) of the Vehicle Code, or Division 11 (commencing with Section 12500) of the Health and Safety Code.

(4) A permit for the conduct of a public display of fireworks authorizes the transportation of fireworks to be used in such display.

990.3. **Exporting.** When imported fireworks are intended for direct shipment to points outside this State by public carrier operating under Department of Transportation regulations, the State Fire Marshal may grant special written permission to transport unlabeled fireworks. Application for such permit shall be accompanied by a report in accordance with Article 12 of these regulations.

990.4. **Shipping.** Importer/exporter licensees shall not release for transportation to any person other than a licensed carrier, any type of classification of fireworks unless the transporter has a valid fireworks license issued by the State Fire Marshal and a permit from local authorities which authorizes him to transport fireworks. When any fireworks shipment is to be made the State Fire Marshal shall be notified prior to such release. Reports required by Article 12 shall be filed.

990.5. **Personnel.** It shall be the responsibility of the employer to instruct his employees who transport fireworks in any capacity in the hazards of fireworks and explosives and with these rules and safety precaution governing fireworks and explosives.

(Register 77, No. 45—11-5-77)

990.6. General Safety. (a) Every vehicle transporting fireworks or pyrotechnic devices shall comply with the provisions of the Vehicle Code of the State of California and the following:

(1) Every vehicle transporting dangerous fireworks shall display on each side, front and rear of the vehicle placards with the word "EXPLOSIVES (B)". The placard's size, color and lettering shall comply with the requirements set forth in Section 27903, Vehicle Code which reads as follows:

27903. Any vehicle transporting any explosive, flammable liquid, flammable solid, oxidizing material, corrosive, compressed gas, poison, or other hazardous materials, except radioactive material of such type and in such quantities as to require the display of placards or markings on the vehicle exterior by the United States Department of Transportation regulations (49 C.F.R., Parts 172, 173, and 177), shall display such placards and markings in the manner and under conditions prescribed by such regulations of the United States Department of Transportation. Vehicles transporting radioactive material shall display placards or markings in accordance with the provisions of the Health and Safety Code.

This section does not apply if the vehicles are transporting not more than 20 pounds of smokeless powder or not more than five pounds of black sporting powder or any combination thereof.

(2) Vehicles used for transportation of fireworks shall be substantially constructed, shall be in good working order, and the load shall be properly secured to prevent fireworks falling from the vehicle. If the vehicle does not have a closed body, the fireworks should be covered with a flame-resistant, moisture-proof tarpaulin.

(3) Each vehicle used for transportation of fireworks shall be equipped with a fully charged fire extinguisher in good condition. Underwriters' Laboratory approved extinguisher of not less than 10 B:C rating or equivalent ABC rating, will meet the minimum requirement. The driver shall be trained in the use of the extinguisher on his vehicle.

(4) Only the driver and employees necessary for the operation of the vehicle shall ride on vehicles transporting fireworks.

(5) No service or repairs involving the use of flame producing devices shall be performed on vehicles carrying fireworks.

(6) No driver of a vehicle containing fireworks shall leave the cab without first stopping the motor and setting the parking brake. All reasonable precautions shall be taken to prevent the movement of such vehicle.

(7) Fireworks shall not be unattended during transportation. The attendant must be trained in the hazards of fireworks and have an emergency plan.

(8) No flammable liquids shall be carried in the vehicle's cargo space with fireworks.

(9) Smoking shall be prohibited on or in any vehicle transporting fireworks.

Exception: These regulations shall not apply to any person when transporting safe and sane fireworks, emergency signaling devices, agriculture and wildlife fireworks or model rocket engines when such items are for personal use.

History: 1. Amendment of subsection (a)(1) filed 11-4-77, effective thirtieth day thereafter (Register 77, No. 45).

Article 12. Reports and Bills of Lading

990.10. Bills of Lading. Every bill of lading, manifest, or invoice issued for sale or shipment of fireworks shall bear the license number of both the seller or shipper and buyer or receiver.

Exception: License numbers for out-of-state buyers or receivers shall not be required.

990.11. Records. All licensees, except retailers, shall maintain and make available to the State Fire Marshal, full and complete, true, and accurate records showing all production, imports, exports, purchases, sales, or other disposition or consumption of fireworks by kind and class whether dangerous, safe and sane, or agricultural and wildlife fireworks.

990.12. Thefts. The licensees shall report any theft or loss of fireworks to the State Fire Marshal within 24 hours after the discovery of the theft or loss. The report shall show the quantity, type and kind, classification of fireworks and the location where the loss occurred.

990.13. Filing Reports. Import/export licensees shall file written reports with the State Fire Marshal involving importation, exportation, and local distribution of fireworks in accordance with the following:

(a) Prior to importing fireworks, the licensee shall file a report with the State Fire Marshal. Reports shall indicate the name and address of the manufacturer and of the shipper, the type and kind of fireworks being imported, the quantity of each type and kind of fireworks, the estimated arrival time of shipment, the name of the carrier, and the load number or other identification carton marks.

(b) Upon arrival or prior thereto, the State Fire Marshal shall be notified as to contemplated disposition of fireworks. Contemplated storage, classification, and reshipment plans shall be included in this report.

(c) Prior to releasing such imported fireworks for shipment either by public carrier or private licensed carrier, whether for shipment in export or to points within the State, licensee shall report the name and address of person or concern to whom it is to be shipped, the quantity of each type of fireworks, the name of the public carrier or the name and state fireworks license number of the private carrier, the date of shipment and such other information as the State Fire Marshal shall request.

(Register 77, No. 45—11-5-77)

Article 13. General Safety Requirements

991. Safety Inspection. Retail fireworks stands and sales areas are subject to inspection by local fire officials. Such stands and sales areas shall be free from any condition which increases, or may cause an increase of, the hazard or menace of fire or explosion to a greater degree than customarily recognized as normal by persons in the public service of preventing, suppressing or extinguishing fire, or which may become the cause of any obstruction, delay or hindrance to the prevention, suppression or extinguishment of fire.

991.1. Disposition Unsold Stock. All retail fireworks licensees shall return unsold fireworks stocks to the wholesaler from whom they were purchased, or the retail licensee may store them in a place and manner approved by the fire authority having jurisdiction. Such return of stock or storage shall be effective not later than the thirty-first of July of each year.

(Register 76, No. 38—9-18-76)

991.2. **Personnel.** It shall be the responsibility of the employer to instruct his employees who handle fireworks in any capacity in the hazards of fireworks and explosives and with these rules and safety precautions governing fireworks and explosives.

991.3. **Smoking.** Smoking shall be prohibited and "No Smoking" signs posted in all portions of the premises or locations where fireworks or pyrotechnic devices are stored, or handled.

991.4. **No Smoking Signs.** Signs bearing the words "No Smoking By Order of the State Fire Marshal" shall be posted on or in every building or structure used for the sale, manufacture, assembly or storage of fireworks. Such signs shall be positioned at the entrance to and inside such buildings or structures and at such other locations as designated by the fire authority having jurisdiction. Lettering shall be red in color on a white background. Such letters shall not be less than 3 inches in height with a stroke of not less than ½ inch.

991.5. **Fire Nuisance.** The premises where fireworks or pyrotechnic devices are handled in any capacity shall be maintained in a clean, neat and orderly condition at all times and be free from any condition that would create a "fire nuisance."

991.6. **Alcohol and Narcotics.** No person shall use or handle fireworks while under the influence of intoxicating liquids or narcotics.

Article 14. Special Effects

992. **Scope.** This article shall govern all "Special Effects Materials" and shall include those materials which have been classified and described by the Bureau of Explosives as Special Fireworks Class B Explosives and Common Fireworks Class C Explosives and such additional items as listed in Table 13A.

992.1. **Basic Requirements.** The use, transportation and storage of all Special Effects Materials shall comply with the requirements and provisions of Division 11 of the California Health and Safety Code, Division 12, 14, and 14.8 of the Vehicle Code and Title 19 of the California Administrative Code.

992.2. **Responsibility.** The company or producer shall designate in writing to the fire authority having jurisdiction the name and license number of the special effects operator who shall have the authority, responsibility and be in charge of handling all Special Effects Materials. The company or producer shall also allocate sufficient time to the Special Effects Pyrotechnic Operator to prepare for the transportation, packing, storing, securing daily, or to dispose of, or otherwise handle special effects materials in a safe manner.

992.3. **Basis.** The regulations contained in this article are intended to establish reasonable fire, explosion, and life safety standards for the use of Special Effects Materials by the entertainment industry.

(Register 77, No. 45—11-5-77)

(d) "D" Definitions.

(1) Dangerous Fireworks. "Dangerous fireworks" includes all of the following:

(A) Any fireworks which contain any of the following:

1. Arsenic, arsenic sulfide, arsenates, or arsenites.
2. Phosphorus, red or white.
3. Thiocyanates.
4. Magnesium (magnesium/aluminum alloys (magnalium) are permitted).
5. Mercury salts.
6. Picrates or picric acid.
7. Gallates or gallic acid.
8. Chlorates, except those of alkali and earth metals.
9. Boron.
10. Titanium, except in particle size greater then 100-mesh.
11. Zirconium.
12. Gunpowder.

(B) Firecrackers, salutes, and other articles which explode.

(C) Skyrockets and rockets, including all devices which employ any combustible or explosive material and rise in the air during discharge.

(D) Roman candles, including all devices which discharge balls of fire into the air.

(E) Chasers, including all devices which dart or travel about the surface of the ground during discharge.

(F) Sparklers more than 10 inches in length or one-fourth of one inch in diameter.

(G) All fireworks designed and intended by the manufacturer to create the element of surprise upon the user. These items include, but are not limited to, auto-foolers, cigarette loads, exploding golf balls, and trick matches.

(H) Fireworks known as devil-on-the-walk, or any other fireworkds which explodes through means of friction, unless otherwise classified by the State Fire Marshal pursuant to this part.

(I) Torpedoes of all kinds which explode on impact.

(J) Fireworks kits.

(K) Devices that may be confused with candy or other foods, such as "dragon eggs" and "cracker balls" (also known as "ball-type caps").

(L) Such other fireworks examined and tested by the State Fire Marshal and determined by him, with the advice of the State Board of Fire Services, to possess characteristics of design or construction which make such fireworks unsafe for use by any person not specially qualified or trained in the use of fireworks.

(2) Darts. "Dart or Darts" means to move suddenly and swiftly from one place to another.

(3) D.O.T. "D.O.T." means U.S. Department of Transportation.

(e) "E" Definitions.

(1) Emergency Signaling Device. "Emergency signaling device" means a pyrotechnic device designed and intended by the manufacturer to be used as such and which provides a reasonable degree of safety to the user and does not create a fire hazard when used according to the label of instructions.

(2) Exempt Fireworks. "Exempt fireworks" means any special item containing pyrotechic compositions which the State Fire Marshal, with the advice of the State Board of Fire Services, has investigated and determined to be limited to industrial, commercial, agricultural use, or religious ceremonies when authorized by a permit granted by the authority having jurisdiction.

(3) Exporter. "Exporter" means any person who sells, consigns, or delivers fireworks located within this state for delivery, use, or sale out of this state.

(f) "F" Definitions.

(1) Fire Nuisance. "Fire nuisance" means anything or any act which increases, or may cause an increase of, the hazard or menace of fire, or which may obstruct, delay, or hinder, or may become the cause of any obstruction, delay, or hindrance, to the prevention or extinguishment of fire.

(2) Fireworks. (a) "Fireworks" means any device containing chemical elements and chemical compounds capable of burning independently of the oxygen of the atmosphere and producing audible, visual, mechanical, or thermal effects which are useful as pyrotechnic devices or for entertainment.

The term "fireworks" includes, but is not limited to, devices designated by the manufacturer as fireworks, torpedoes, skyrockets, roman candles, rockets, Daygo bombs, sparklers, party poppers, paper caps, chasers, fountains, smoke sparks, aerial bombs, and fireworks kits.

(b) The term "Firecracker" means a device consisting of an explosive pyrotechnic composition in an amount not to exceed 50 milligrams (.772 grains) in weight, in a fused container whose primary function is to produce an audible effect.

Note: Pyrotechnic devices similar to construction to "firecracker" which exceed the specified weight shall be considered as explosives.

(3) Fireworks Kit. "Fireworks kit" means any assembly of materials or explosive substances, which is designed and intended by the seller to be assembled by the person receiving such material or explosive substance and when so assembled would come within the definition of fireworks.

(Register 77, No. 46—11-6-77)

(g) "G" Definitions.

(1) Ground Spinning Device. Ground spinning device means a device designed to spin rapidly in a circle, above the surface of the ground, while emitting sparks from an orifice in the device.

(h) "H" Definitions. None.

(i) "I" Definitions.

(1) ICC (or I.C.C.). "ICC (or I.C.C.)" wherever used in these regulations shall mean the U.S. Department of Transportation (DOT).

(2) Importer. "Importer" means any person who for any purpose does any of the following:

(A) Brings fireworks into this state or causes fireworks to be brought into this state.

APPENDIX G

LIST OF EXPLOSIVE MATERIALS

List of Explosive Materials

The following is the 1976 List of Explosive Materials subject to regulation under 18 U.S.C. Chapter 40. Included are both explosives (including detonators) required by law to be published in the Federal Register, and blasting agents. It is intended that the list include any and all mixtures containing any of the materials on the list. Materials constituting blasting agents are marked by an asterisk*. Although an explosive material may not be on the list, this does not mean that the material is not within the coverage of the law if it otherwise meets the statutory definition in 18 U.S.C. 841. Explosive materials are listed alphabetically by their common names followed by chemical names and synonyms in brackets.

A

Acetylides of heavy metals.
Aluminum containing polymeric propellant.
Aluminum ophorite explosive.
Amatex-20 [40% TNT, 20% RDX, 40% Ammonium nitrate].
Amatex-30 [40% TNT, 30% RDX, 30% ammonium nitrate].
Amatex-40 [40% TNT, 40% RDX, 20% ammonium nitrate].
Amatol.
Ammonal.
Ammonium nitrate explosive mixtures (cap sensitive).
*Ammonium nitrate explosive mixtures (not cap sensitive).
Aromatic nitro-explosive mixture.
Ammonium perchlorate having particle size less than 45 microns.
Ammonium perchlorate composite propellant.
Ammonium picrate [picrate of ammonia].
Ammonium salt lattice with isomorphously substituted inorganic salts.
*ANFO [ammonium nitrate-fuel oil].

B

Baratol [67% barium nitrate, 33% TNT].
Basonal [50% barium nitrate, 35% TNT, 15% aluminum].
BEAF [1,2-bis (2,2-difluoro-2-nitroacetoxyethane)].
Black powder.
*Blasting agents, nitro-carbo-nitrates, including non cap sensitive slurry and water-gel explosives.
Blasting caps.
Blasting gelatin.
Blasting powder.
BTNEC [bis (trinitroethyl) carbonate].
BTNEN [bis (trinitroethyl) nitramine].
BTTN [1,3,4 butanetriol trinitrate].
Butyl tetryl.

C

Calcium nitrate explosive mixture.
Carboxy-terminated propellant.
Cellulose hexanitrate explosive mixture.
Chlorates and red phosphorus mixture.
Chlorates and sulphur mixture.
Composition A-3 [91%, RDX, 9% Wax]
Composition B [40% TNT, 60% RDX]
Composition C-4 [91% RDX, 9% plasticizer]
Copper acetylide.
Crystalline picrate with lead azide explosive mixture.
Cyanuric triazide.
Cyclotrimethylenetrinitramine [RDX]
Cyclotetramethylenetetranitramine.
Cyclotol [75% RDX, 25% TNT]

D

DATB [diaminotrinitrotetramethylene tetranitramine].
DATNB [diaminotrinitrobenzene]
DDNP [diazodinitrophenol].
DEGDN [diethyleneglycol dinitrate].
*Delay powders.
Detonating cord.
Detonators.
Dimethylol dimethyl methane dinitrate composition.
Dinitroethyleneurea.
Dinitroglycerine.
Dinitrophenol.
Dinitrophenolates.
Dinitrophenyl hydrazine.
Dinitroresorcinol.
Dinitrotoluene-sodium nitrate explosive mixtures.
Dipicryl sulfone.
Dipicrylamine.
DNDP [dinitropentano nitrile].
DNPA [2,2-dinitropropyl acrylate]
Dynamite.

E

EDNP [ethyl 4,4-dinitropentanoate].
Erythritol tetranitrate explosives.
Esters of nitro-substituted alcohols.
EGDN [ethylene glycol dinitrate].
Ethyl-tetryl.
Explosive conitrates.
Explosive gelatins
Explosive mixtures containing oxygen releasing inorganic salts and hydrocarbons.
Explosive mixtures containing oxygen releasing inorganic salts and nitro bodies.
Explosive mixtures containing oxygen releasing inorganic salts and water insoluble fuels.
Explosive mixtures containing oxygen releasing inorganic salts and water soluble fuels.
Explosive mixtures containing sensitized nitromethane.
Explosive nitro compounds of aromatic hydrocarbons.
Explosive organic nitrate mixtures.
Explosive liquids.
Explosive powders.

F

Fulminate of mercury.
Fulminate of silver.
Fulminating gold.
Fulminating mercury.
Fulminating platinum.
Fulminating silver.

G

Gelatinized nitrocellulose.
gem-dinitro aliphatic explosive mixtures.

Guanyl nitrosamino guanyl tetrazene.
Guanyl nitrosamino guanylidene hydrazine.
Guncotton.

H

Heavy metal azides.
Hexanite.
Hexanitrodiphenylamine.
Hexanitrostilbene.
Hexogen [RDX].
Hexogene or octogene and a nitrated N-methylaniline.
Hexolites.
HMX [cyclo-1,3,5,7-tetramethylene-2,4,6,8-tetranitramine; Octogen].
Hydrazinium nitrate.
Hydrazinium nitrate/hydrazine aluminum explosive system.
Hydrazoic acid.

I

Igniter cord.
Igniters.

K

KDNBF [potassium dinitrobenzo-furoxane]

L

Lead azide.
Lead mannite.
Lead mononitroresorcinate.
Lead picrate.
Lead salts, explosive.
Lead styphnate [styphnate of lead, lead trinitroresorcinate].
Liquid nitrated polyol and trimethylolethane.
Liquid oxygen explosives.

M

Magnesium ophorite explosives.
Mannitol hexanitrate.
MDNP [methyl 4,4-dinitropentanoate].
Mercuric fulminate.
Mercury oxalate.
Mercury tartrate.
Minol-2 [40% TNT, 40% ammonium nitrate, 20% aluminum].
Mononitrotoluene-nitroglycerin mixture.
Monopropellants.

N

NIBTN [nitroisobutatriol trinitrate].
Nitrate sensitized with gelled nitroparaffin.
Nitrated carbohydrate explosive.
Nitrated glucoside explosive.
Nitrated polyhydric alcohol explosives.
Nitrates of soda explosive mixtures.
Nitric acid and a nitro aromatic compound explosive.
Nitric acid and carboxylic fuel explosive.
Nitric acid explosive mixtures.
Nitro aromatic explosive mixtures.
Nitro compounds of furane explosive mixtures.
Nitrocellulose explosive.
Nitroderivative of urea explosive mixture.
Nitrogelatin explosive.
Nitrogen trichloride.
Nitrogen tri-iodide.
Nitroglycerine [NG, RNG, nitro, glyceryl trinitrate, trinitroglycerine].
Nitroglycide.
Nitroglycol [ethylene glycol dinitrate, EGDN]
Nitroguanidine explosives.
Nitroparaffins and ammonium nitrate mixtures.
Nitronium perchlorate propellant mixtures.
Nitrostarch.
Nitro-substituted carboxylic acids.
Nitroureas.

O

Octogen [HMX].
Octol [75 percent HMX, 25 percent TNT]
Organic amine nitrates.
Organic nitramines.
Organic peroxides.

P

Pellet powder.
Penthrinite composition.
Pentolite.
Perchlorate explosive mixtures.
Peroxide based explosive mixtures.
PETN [nitropentaerythrite, pentaerythrite tetranitrate, pentaerythritol tetranitrate].
Picramic acid and its salts.
Picramide.
Picrate of potassium explosive mixtures.
Picratol.
Picric acid.
Picryl chloride.
Picryl fluoride.
PLX [95% nitromethane, 5% ethylenediamine].
Polynitro aliphatic compounds.
Polyolpolynitrate-nitrocellulose explosive gels.
Potassium chlorate and lead sulfocyanate explosive.
Potassium nitroaminotetrazole.

R

RDX [cyclonite, hexogen, T4, cyclo-1,3,5,-trimethylene-2,4,6-trinitramine; hexahydro-1,3,5-trinitro-5-triazine].

S

Safety fuse.
Salts of organic amino sulfonic acid explosive mixture.
Silver acetylide.
Silver azide.
Silver fulminate.
Silver oxalate explosive mixtures.
Silver styphnate.
Silver tartrate explosive mixtures.
Silver tetrazene.
Slurried explosive mixtures of water, inorganic oxidizing salt, gelling agent, fuel and sensitizer.
Smokeless powder.
Sodatol.
Sodium amatol.
Sodium dinitro-ortho-cresolate.
Sodium nitrate-potassium nitrate explosive mixture.
Sodium picramate.
Squibs.
Styphnic acid.

T

Tacot [tetranitro-2,3,5,6-dibenzo-1,3a,4,6a-tetrazapentalene].
TATNB [triaminotrinitrobenzene].
TEGDN [triethylene glycol dinitrate].
Tetrazene [tetracene, tetrazine, 1(5-tetrazolyl)-4-guanyl tetrazene hydrate].
Tetranitrocarbazole
Tetranitromethane explosive mixtures.
Tetryl [2,4,6 tetranitro-N-methylaniline].
Tetrytol.
Thickened inorganic oxidizer salt slurried explosive mixture.
TMETN [trimethylolethane trinitrate].
TNEF [trinitroethyl formal].
TNEOC [trinitroethylorthocarbonate].
TNEOF [Trinitroethyl orthoformate].
TNT [trinitrotoluene, trotyl, trilite, triton].
Torpex.
Tridite.
Trimethylol ethyl methane trinitrate composition.
Trimethylolthane trinitrate-nitrocellulose.
Trimonite.
Trinitroanisole.
Trinitrobenzene.
Trinitrobenzoic acid.
Trinitrocresol.
Trinitro-meta-cresol.
Trinitronaphthalene.
Trinitrophenetol.
Trinitrophloroglucinol.
Trinitroresorcinol.
Tritonal.

U

Urea nitrate.

W

Water bearing explosives having salts of oxidizing nitrogen bases, sulfates, or sulfamates.

X

Xanthamonas hydrophilic colloid explosive mixture.

APPENDIX H

NATIONAL FIRE PROTECTION ASSOCIATION CODES & STANDARDS

Code for the

Manufacture, Transportation, and Storage of

Fireworks

NFPA No. 44A — 1974

1974 Edition of No. 44A

The 1974 edition incorporates amendments proposed by the Sectional Committee on Explosives and adopted by the National Fire Protection Association on May 23 at the 1974 Annual Meeting. It supersedes the 1973 edition. Amendments adopted in 1974 are summarized on page 44A-44.

Origin and Development of No. 44A

The text presented here was prepared by the Sectional Committee on Explosives of the Committee on Chemicals and Explosives. It contains those requirements that the Sectional Committee believes to be essential for the safe manufacture, transportation, and storage of fireworks. The original text and subsequent revisions have been processed in accordance with NFPA Regulations Governing Technical Committees. The original text was adopted as a Tentative Code at the 1972 NFPA Annual Meeting; in revised form it was officially adopted in 1973, and revised in 1974.

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Henry T. Rittman, Institute of Makers of Explosives
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†Nonvoting

This list represents the membership at the time the Committee was balloted on the text of this edition. Since that time, changes in the membership may have occurred.

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Interpretation Procedure

Those desiring an interpretation shall supply the Chairman with five identical copies of a statement in which shall appear specific reference to a single problem, paragraph, or section. Such a statement shall be on the business stationery of the inquirer and shall be duly signed.

When applications involve actual field situations they shall so state and all parties involved shall be named.

The Interpretations Committee will reserve the prerogative to refuse consideration of any application that refers specifically to proprietary items of equipment or devices. Generally inquiries should be confined to interpretation of the literal text or the intent thereof.

Requests for interpretations should be addressed to the National Fire Protection Association, 470 Atlantic Avenue, Boston, MA 02210.

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Code for the Manufacture, Transportation, and Storage of Fireworks

NFPA No. 44A — 1974

FOREWORD

Fireworks when not properly handled can result in injury, loss of life, and property damage. This Code is intended to provide reasonable safety in the manufacture, storage, and transportation of fireworks.

The problems of safety in manufacturing, transportation, and storage of fireworks are in many ways much different from those of most explosives and propellants. In general, the sensitivity of fireworks, particularly Class C fireworks, to shock and impact is considerably less than that of most explosives and propellants. On the other hand, most fireworks are more sensitive to sparks and flame than most explosive materials.

The problems of protection in case an accident occurs are also significantly different. For example, concrete or earthen barricades which are quite effective in preventing sympathetic detonations between detonable materials can in some cases worsen the problem with fireworks, by increasing the fragment throw distance and even the severity.

Degree of confinement of fireworks, whether by packaging, building walls or barricades, is of paramount importance. In contrast many Class A explosives will detonate when shock-initiated even if unconfined."

It is the purpose of this Code to recognize these differences, prevent accidents wherever possible and protect life and property.

Fireworks are acceptable articles for transportation when properly packaged and marked in accordance with the regulations of the U. S. Department of Transportation and when handled with specified care. Before new fireworks devices can be classified under the regulations of the U. S. Department of Transportation, they must be approved by the Bureau of Explosives, Association of American Railroads.

Safe practices that are uniform throughout the nation have many advantages to industry, fire services, governmental agencies, and others. This Code, therefore, is offered to municipal, state, and Federal agencies responsible for protecting the public against the hazards of fireworks as the basis of their regulations.

CHAPTER 1. GENERAL REQUIREMENTS

11. Scope

111. This Code shall apply to the manufacture, transportation, and storage of fireworks. The term fireworks as used in this Code includes only those items defined as fireworks in Article 15.

112. It shall not apply to the sale and use of fireworks.*

113. It shall not apply to any aspect of the transportation of fireworks when under the jurisdiction of and in compliance with the regulations of the Department of Transportation (DOT) in the United States.** It shall, however, apply to state and municipal supervision of transportation of fireworks as to compliance with Federal regulations within the jurisdiction of a state or a municipality.

114. It shall not apply to the manufacture, transportation, and storage of fireworks by the Armed Forces of the United States.

115. It shall not apply to the storage of fireworks at retail stores, nor to storage of display fireworks at places of display.

12. Security and Safety of Fireworks

121. The manufacture of any fireworks as herein defined, shall be prohibited within (name of city, county, state, or other area) unless such manufacture is authorized by Federal license where required and is conducted in accordance with the requirements of this Code.

122. The authority having jurisdiction may restrict the quantity of fireworks that may be manufactured or stored at any location within (name of city, county, state, or other area).

123. A person intending to engage in business as an importer or manufacturer of, or dealer in fireworks shall obtain a Federal license or permit where required in accordance with Title XI, Regulation of Explosives of the Crime Control Act of 1970 (18 U.S.C., Chapter 40) and shall comply with applicable state and local laws and regulations.

124. This Code is intended to supplement existing Federal laws and regulations.

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*See Appendix A22.

**See Appendix A12.

13. Licenses and Permits

131. No person shall be in possession of any explosive material for the manufacture of fireworks without a proper license or permit.

132. Copies of all required licenses and permits shall be posted at each fireworks plant.

133. License and permit holders shall take every reasonable precaution to protect their premises from loss, theft, defacement, destruction or unauthorized duplication, and any such occurrence shall be reported immediately to the issuing authority.

134. No license or permit may be assigned or transferred.

14. Record Keeping and Reporting

141. A holder of a license or permit shall keep a record of all transactions or operations involving explosive materials and fireworks for five years. Such record shall be made available to the authorities having jurisdiction upon request.

142. An accumulation of invoices, sales slips, delivery tickets or receipts, bills of lading, or similar papers representing individual transactions will satisfy the requirement for records provided they include the signature of the receiver of the explosive materials or fireworks.

143. The issuing authority shall be notified promptly by any license or permit holder of a change in business address.

144. The loss, theft or unlawful removal of explosive materials shall be reported immediately to the appropriate Regional Director, Bureau of Alcohol, Tobacco, and Firearms, U. S. Department of the Treasury, and to the local law enforcement authorities.

15. Definitions

Barricade. A natural or artificial barrier that will effectively screen a magazine, building, railway, or highway from the effects of an explosion in a magazine or building containing explosives. It shall be of such height that a straight line from the top of any sidewall of a building or magazine containing explosives to the eave line of any magazine, or building, or to a point 12 feet above the center of a railway or highway, will pass through such natural or artificial barrier.

NATURAL BARRICADE. Natural features of the ground, such as hills, or timber of sufficient density that the surrounding exposures that require protection cannot be seen from the magazine or building containing explosives when the trees are bare of leaves.

ARTIFICIAL BARRICADE. An artificial mound or revetted wall of earth of a minimum thickness of three feet.

BREAKAWAY CONSTRUCTION. A general term which applies to the principle of purposely providing a weak wall so that the explosive effects can be directed and minimized. The term "weak wall" as used in this Code refers to a weak wall; weak wall and roof, or weak roof.

The term "weak wall" is used in a relative sense as compared to the construction of the entire building. The design strength of a "weak wall" will vary as to the building construction, as well as to the type and quantity of explosive or pyrotechnic materials in the building. The materials used for "weak wall" construction are usually light gage metal, plywood, hardboard or equivalent lightweight material, and the material is purposely selected to minimize the danger from flying missiles. Method of attachment of the weak wall shall be such as to aid the relief of blast pressure and fireball.

BULLET-SENSITIVE EXPLOSIVES MATERIAL. Means any explosive material that when tested at a density equal to that of the explosive material when packaged for shipment can be detonated by a 150-grain full metal case projectile (150-grain M2 ball ammunition) fired from a standard .30–06 caliber rifle having a nominal muzzle velocity of 2,700 feet per second. The bullet is fired from a distance of 100 feet and the test material is at a temperature of 70° to 75°F and is immediately in front of a ½-inch-thick steel plate.

EXPLOSIVE. Shall mean any chemical compound mixture, or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, and igniters.

Explosive includes any material determined to be within the coverage of 18 U.S.C., Chapter 40, Inspection, Manufacture, Distribution and Storage of Explosive Materials, and includes any material classified as an explosive in the regulations of the U. S. Department of Transportation.

NOTE 1: A list of explosives determined to be within the coverage of 18 U.S.C., Chapter 40, Importation, Manufacture, Distribution and Storage of Explosive Materials, is issued at least annually by the Director, Bureau of Alcohol, Tobacco, and Firearms, U.S. Department of the Treasury.

NOTE 2: Classification of explosives described in the regulations of the U.S. Department of Transportation is as follows:

Class A Explosives. Possessing detonating or otherwise maximum hazard; such as dynamite, desensitized nitroglycerin, lead azide, fulminate of mercury, black powder, blasting caps, and detonating primers.

Class B Explosives. Possessing flammable hazard, such as propellant explosives (including some smokeless propellants) and photographic flash powders.

Class C Explosives. Includes certain types of manufactured articles which contain Class A or Class B explosives, or both, as components but in restricted quantities.

Forbidden or Not Acceptable Explosives. Shall mean explosives which are forbidden or not acceptable for transportation by common carriers by rail freight, rail express, highway, or water in accordance with the regulations of the U. S. Department of Transportation.

FIREWORKS. Means any composition or device for the purpose of producing a visible or audible effect by combustion, deflagration or detonation and classified as common or special fireworks by the Bureau of Explosives. Fireworks are further classified in this Code as Class B or Class C. The following items, although classified by the Bureau of Explosives as Class C explosives, but not fireworks, are for the purposes of applying the manufacturing and storage requirements of this Code considered to be Class C fireworks: toy smoke devices, toy caps containing not more than 0.25 grains of explosive mixture, toy propellant devices, cigarette loads, trick matches, trick noise makers, smoke candles, smoke pots, smoke grenades, smoke signals, hand signal devices, Very signal cartridges, certain sparklers, explosive auto alarms.

CLASS B FIREWORKS. Means fireworks designed primarily to produce visible or audible effects by combustion, deflagration or detonation. Class B fireworks includes but is not limited to toy torpedoes, railway torpedoes, firecrackers and salutes that do not qualify as Class C fireworks, exhibition display pieces, aeroplane flares, illuminating projectiles, incendiary projectiles, incendiary grenades; smoke projectiles or bombs containing expelling charges but without bursting charges; flash powders in inner units not exceeding two ounces each, flash sheets in interior packages, flash powder or spreader cartridges containing not over 72 grains of flash powder

each. The definition of "Class B fireworks" is based on the definition of *special fireworks* of the United States Department of Transportation [Code of Federal Regulations, Title 49, paragraph 173.88(d)].*

CLASS C FIREWORKS. Means fireworks designed primarily to produce visible effects by combustion. The definition of "Class C fireworks" is based on the definition of the United States Department of Transportation of *common fireworks* [Code of Federal Regulations, Title 49, paragraph 173.100(r)].* Some small devices designed to produce an audible effect are included, but only when containing two grains or less of pyrotechnic composition. Propelling or expelling charges consisting of a mixture of sulfur, charcoal and saltpeter are not considered as designed to produce audible effects.

Class C Fireworks, as classified by the Bureau of Explosives and as regulated by the United States Department of Transportation, includes the following:

(1) Roman candles, not exceeding 10 balls, with total pyrotechnic composition not exceeding 20 grams in weight and inside tube diameter not exceeding three-eighths inch.

(2) Sky rockets with sticks, total pyrotechnic composition not exceeding 20 grams in weight, and inside tube diameter not exceeding one-half inch.

(3) Helicopter type rockets, total pyrotechnic composition not exceeding 20 grams in weight, and inside tube diameter not exceeding one-half inch.

(4) Cylindrical fountains with total pyrotechnic composition not exceeding 75 grams in weight, and inside tube diameter not exceeding three-fourths inch.

(5) Cone fountains with total pyrotechnic composition not exceeding 50 grams each in weight.

(6) Wheels, with total pyrotechnic composition not exceeding 60 grams for each driver unit or 240 grams for each wheel, and with inside tube diameter of driver units not exceeding one-half inch.

(7) Illuminating torches and colored fire in any form with total pyrotechnic composition not exceeding 100 grams each.

*See Appendix A12

(8) Dipped sticks, the pyrotechnic composition of which contains any chlorate or perchlorate not exceeding five grams, and all sparklers.

(9) Mines and shells of which the mortar is an integral part, total pyrotechnic composition not exceeding 40 grams in weight.

(10) Firecrackers and salutes with casings, and external dimensions not exceeding one-and-one-half inches in length, or one-quarter inch in diameter, and total explosive composition not exceeding two grains each in weight.

(11) Novelties consisting of two or more devices enumerated in Items 1-10 of this definition.

NOTE: For the purposes of interstate transportation any new device not enumerated in 1-11 above must be approved by the Bureau of Explosives for classification as Class C fireworks.

FIREWORKS PLANT. Means all lands, and buildings thereon, used for or in connection with the manufacture or processing of fireworks. It includes storage buildings used with or in connection with plant operation.

HIGHWAY. Means any public street, public alley or public road.

INHABITED BUILDING. Means a building or structure regularly used in whole or part as a place of human habitation. The term "inhabited building" shall also mean any church, school, store, passenger station, airport terminal for passengers, and any other building or structure where people are accustomed to congregate or assemble, but excluding any building or structure occupied in connection with the manufacture, transportation, and storage of explosive materials or fireworks.

MAGAZINE. Means any building or structure, other than a manufacturing building, meeting the requirements specified in Chapter 3 of this Code.

MANUFACTURE OF FIREWORKS. Means the preparation of fireworks mixes and the loading and assembling of all fireworks, except pyrotechnic display items made on site by qualified personnel for immediate use when such operation is otherwise lawful.

MIXING BUILDING. Means any building used primarily for mixing and blending pyrotechnic composition, excluding wet sparkler mixes.

MOTOR VEHICLE. Means any self-propelled passenger vehicle, truck, tractor, semitrailer, or truck-full trailer used for the transportation of freight over public highways.

NONPROCESS BUILDING. Means office buildings, warehouses, and other fireworks plant buildings where no fireworks or explosive compositions are processed or stored.

PERSON. Means any individual, firm, copartnership, corporation, company, association, joint stock association, and including any trustee, receiver, assignee, or personal representative thereof.

PROCESS BUILDING. Means any mixing building; any building in which pyrotechnic or explosive composition is pressed or otherwise prepared for finishing and assembling; or any finishing and assembling building, including a building used for preparation of fireworks for shipment. If a pyrotechnic or explosive composition while in the state of processing is stored in a process building, the building is classified as a process building. See also STORAGE BUILDING.

PUBLIC CONVEYANCE. Means any vehicle carrying passengers for hire.

PYROTECHNIC COMPOSITION. Means a chemical mixture which on burning and without explosion produces visible or brilliant displays or bright lights, or whistles.

RAILWAY. Means any steam, electric, diesel electric or other railroad or railway which carries passengers for hire on the particular line or branch in the vicinity where explosives or fireworks are stored or where fireworks manufacturing buildings are situated.

SCREEN TYPE BARRICADE. Means any of several barriers for containing embers and debris from fires and deflagrations in process buildings that could cause fires and explosions in other buildings. Screen type barricades are constructed of metal roofing, one-quarter-inch and one-half-inch mesh screen or equivalent material. A screen type barricade extends from the floor level of the donor building to such height that a straight line from the top of any

side wall of the donor building to the eave line of the acceptor building will go through the screen at a point not less than five feet from the top of the screen. The top five feet of the screen are inclined at an angle of between 30 and 45 degrees, toward the donor building.

SQUIB. Means a device containing a small quantity of ignition compound in contact with a bridge wire.

STORAGE BUILDING. Means any building, structure, or facility in which Class C fireworks in any state of processing, or finished Class C fireworks are stored, but in which no processing or manufacturing is performed.

WAREHOUSE. Means any building or structure used exclusively for the storage of materials, except fireworks or combustible or explosive compositions used to manufacture fireworks.

CHAPTER 2. MANUFACTURING OPERATIONS

21. General

211. All fireworks plants shall comply with the requirements of this Chapter except that those plants that meet all of the conditions of the following paragraphs a, b and c need not comply with Articles 22 and 26:

a. Making only customized fireworks not for general sale.

b. Having not more than five pounds of explosive composition, including not more than one-half pound of initiating explosive, in a building at one time.

c. All explosive and pyrotechnic compositions are removed to an appropriate storage magazine at the end of each work day.

22. Building Site Security

221. All fireworks plants shall be completely surrounded by a substantial fence having a minimum height of six feet. All buildings, except office buildings in which no processing or storage is permitted, must be located within the fence. All openings in the fence shall be equipped with suitable gates which shall be kept securely locked at all times, except when in actual use; except that the main gate of the plant may be left open during the regular hours of plant operation while in plain view of and under observation by authorized responsible employees or guards. Conspicuous signs indicating "WARNING — NO SMOKING — NO TRESPASSING" shall be posted along the plant fence at intervals not to exceed 500 feet.

222. No person other than authorized employees or representatives of departments of Federal, state, or political subdivisions of the state governments having jurisdiction over the establishment shall be allowed in any fireworks plants, except by special permission secured from the plant office.

23. Separation Distances

231. All process buildings shall be separated from inhabited buildings, public highways and passenger railways in accordance with Table 1.

232. The separation distance between process buildings shall be in accordance with Table 2.

233. Separation distances of nonprocess buildings from process buildings and magazines shall be in accordance with Table 2.

234. Separation of magazines containing black powder or salutes classified as Class B fireworks from inhabited buildings, highways, and other magazines containing black powder or salutes classified as Class B fireworks shall be in accordance with Table 3.

24. Building Construction

241. Process buildings, except buildings in which customers' orders are prepared for shipment, shall embody breakaway construction. The exterior of process buildings constructed after this Code is adopted shall be constructed of materials no more combustible than painted wood.

242. No building shall have a basement or be more than one story high. Interior wall surfaces and ceilings of buildings shall be smooth, free from cracks and crevices, noncombustible, and with a minimum of horizontal ledges upon which dust may accumulate. Wall joints and openings for wiring and plumbing shall be sealed to prevent entry of dust. Floors and work surfaces shall not have cracks or crevices in which explosives or pyrotechnic compositions may lodge.

243. Mixing and pressing buildings shall have conductive flooring, properly grounded.

244. The exits in buildings in which fireworks are being processed shall comply with the requirements for General Industrial Occupancies in NFPA No. 101, Code for Safety to Life from Fire in Buildings and Structures, except that the number and location of exits shall be as specified in a, b and c.

a. From every point in every undivided floor area of more than 100 square feet there shall be at least two exits accessible in different directions. Where building floors are divided into rooms, there shall be at least two ways of escape from every room of more than 100 square feet; toilet rooms need have only one exit and shall be so located that the points of access thereto are away from or suitably shielded from fireworks processing areas.

b. Exits shall be so located that it will not be necessary to travel more than 25 feet from any point to reach the nearest exit. The routes to the exits shall be unobstructed.

c. Exit doors shall open outward, and shall be capable of being pressure-actuated from the inside.

25. Heat, Light, Electrical Equipment

251. No stoves, exposed flames, or electric heaters may be used in any part of a building except in a boiler room, machine shop, office building, pumphouse, or lavatory in which the presence of fireworks, fireworks components, or flammable liquids are prohibited. Heating shall be by means of steam, indirect hot air radiation, hot water, or any other means approved by local authorities. Unit heaters, located inside buildings that at any time contain explosive or pyrotechnic composition, shall be equipped with motors and switches suitable for use in Class II, Division 1 locations.

252. Where artificial lighting is required in fireworks processing buildings it shall be by electricity. Temporary or loose electrical wiring shall not be used. Extension lights are prohibited except that during repair operations approved portable lighting equipment may be used after the area has been cleared of all pyrotechnic or explosive composition and after all dust has been removed by washing down.

253. All wiring in process buildings shall be in rigid metal conduit or be Type MI cable. The wiring, lighting fixtures, and switches shall comply with the requirements for Class II, Division 1 locations in Article 502 of the National Electrical Code, NFPA No. 70.*

254. Wiring, switches, and fixtures in storage buildings shall comply with the requirements for Class II, Division 2 locations in Article 502 of the National Electrical Code, NFPA No. 70.*

255. All presses and other mechanical devices shall be properly grounded.

256. A master switch shall be provided at the point where electric current enters the plant, which will, upon being opened, immediately cut off all electric current to the plant, except that to emergency circuits such as a supply to a fire pump or emergency lighting.

*See Appendix A23.

26. Maximum Building Occupancy and Quantities of Explosive or Pyrotechnic Compositions Permitted

261. The number of occupants in each process building and magazine shall be limited to that number necessary for the proper conduct of those operations.

NOTE: This requirement is for purposes of minimizing personnel exposure and is distinct from any requirement on maximum building occupancy that may be in the local building code.

262. The maximum number of occupants permitted in each process building and magazine shall be posted in a conspicuous location.

263. No more than 500 pounds of pyrotechnic and explosive composition shall be permitted at one time in any mixing building or any building in which pyrotechnic and explosive compositions are pressed or otherwise prepared for finishing and assembling.

264. No more than 500 pounds of pyrotechnic and explosive composition shall be permitted in a finishing and assembling building at one time.

27. Fire, Explosion Prevention

271. All buildings shall be kept clean, orderly, and free from accumulation of dust or rubbish. Powder or other explosive or pyrotechnic materials, when spilled, shall be immediately cleaned up and removed from the building.

272. Rags, combustible, pyrotechnic or explosive scrap, and paper shall be kept separate from each other and placed in approved marked containers. All waste and reject hazardous material shall be removed from all buildings daily and removed from the plant at regular intervals and destroyed by submersion in water or by burning in a manner acceptable to local authorities.

273. No smoking or carrying of lighted pipes, cigarettes, cigars, matches, lighters, or open flame, is permitted within the plant fence; except that smoking may be permitted in office buildings or buildings used exclusively as lunchrooms or rest rooms and in which the presence of fireworks or any explosive composition is prohibited. Authorized smoking locations shall be so marked, contain suitable

receptacles for cigarette and cigar butts and pipe residue, and contain at least one serviceable fire extinguisher suitable for use on Class A fires. Persons whose clothing is contaminated with explosives, pyrotechnic, or other dangerous materials to the degree that may endanger the safety of personnel shall not be permitted in smoking locations.

274. Matches, cigarette lighters or other flame-producing devices shall not be brought into any process building or magazine.

275. No employee or other person shall enter or attempt to enter any fireworks plant with liquor or narcotics in his possession, or while under the influence of liquor or narcotics, or partake of intoxicants or narcotics or other dangerous drugs while in a fireworks plant.

276. All persons working at or supervising the operations in fireworks mixing and pressing buildings shall be provided with, and wear, cotton working uniforms. In addition, conductive shoes and cotton socks shall be required for all Class B fireworks operations and all mixing, pressing, loading, and matching related to Class C fireworks. Facilities for changing into these uniforms, and safekeeping for the employees' street clothes shall be provided. The uniforms shall be frequently washed, to prevent accumulation of explosive or other pyrotechnic compounds, and shall not be worn outside the fireworks plant. Washing and shower facilities for employees shall be provided. All persons working in or supervising the operations in a process building shall wear protective clothing and eye protection as needed. All persons working in or supervising mixing areas shall wear respirators when the situation dictates their need.

277. Each fireworks plant shall have an employee designated as safety officer. All employees of a fireworks plant, upon commencing employment and at least annually thereafter, shall be given formal instruction by this safety officer, regarding proper methods and procedures in fireworks plants and safety requirements and procedures for handling explosives, pyrotechnics and fireworks.

278. In areas where there is a danger of ignition of materials by sparks, properly maintained and nonferrous safety hand tools shall be used.

279. In no case shall oxidizers such as nitrates, chlorates, or perchlorates be stored in the same building with combustible powdered materials such as charcoal, gums, metals, sulfur, or antimony sulfide.

CHAPTER 3. STORAGE OF CLASS B FIREWORKS AND BLACK POWDER

31. General Provisions

311. Class B fireworks and black powder shall be stored in magazines that meet the requirements of this Chapter.

312. Class B fireworks and black powder shall be stored in magazines unless they are in process of manufacture, being physically handled in the operating process, being packaged or being transported.

313. Magazines required by this Chapter shall be constructed in accordance with Articles 32 and 33.

314. Class B fireworks that are bullet-sensitive, shall be stored in Type 1, 2, or 3 magazines.

a. Black powder, and Class B fireworks that are not bullet-sensitive shall be stored in a Type 1, 2, 3, or 4 magazine.

315. Magazines containing black powder shall be separated from inhabited buildings, passenger railways, and public highways, and other magazines in accordance with Table 3.

316. Magazines containing Class B fireworks shall be separated from inhabited buildings, passenger railways and public highways in accordance with Table 1.

317. Magazines containing Class B fireworks shall be separated from other magazines and from fireworks plant buildings by barricades or screen-type barricades and the distances from other magazines and process buildings shall be in accordance with Table 2.

32. Construction of Magazines -- General

321. Magazines shall be constructed in conformity with the provisions of this Chapter, or may be of substantially equivalent construction.

28. Testing Fireworks

281. Testing of fireworks and components of fireworks **shall** be performed in an area set aside for that purpose and located at a safe distance, considering the nature of the materials being tested, from any plant building or other structure.

29. Fire Extinguishers; Emergency Procedures

291. Fire extinguishers shall be provided in all buildings except those in which pyrotechnic mixtures are exposed. The number and location of extinguishers shall be in accordance with NFPA No. 10, Standard for the Installation of Portable Fire Extinguishers.

292. Emergency procedures shall be formulated for each plant which will include personnel instruction in any emergency that may be anticipated. All personnel shall be made aware of an emergency warning signal.

293. Emergency procedures shall include instruction in the use of portable fire extinguishers and instructions on the type of fires on which they may and may not be used.

a. The employees shall be told that if a fire is involving or is in danger of spreading to pyrotechnic mixtures, they are to leave the building at once and follow prescribed procedures for alerting other employees.

b. Extinguishers may be used on fires involving ordinary combustible materials, if the fire can be fought and extinguished without exposing pyrotechnic mixtures.

322. The ground around magazines shall be graded in such a manner that water will drain away from the magazines.

323. Magazines requiring heat shall be heated by either hot water radiant heating within the magazine building; or air directed into the magazine building over either hot water or low pressure steam (15 psig maximum) coils located outside the magazine building.

324. The magazine heating systems shall meet the following requirements:

1. The radiant heating coils within the building shall be installed in such a manner that the fireworks containers cannot contact the coils and air is free to circulate between the coils and the fireworks.

2. The heating ducts shall be installed in such a manner that the hot air discharge from the duct is not directed against the fireworks or fireworks containers.

3. The heating device used in connection with a magazine shall have controls that prevent the ambient building temperature from exceeding 130° F.

4. The electric fan or pump used in the heating system for a magazine shall be mounted outside and separate from the wall of the magazine and shall be grounded.

5. The electric fan motor and the controls for an electrical heating device used in heating water or steam shall have overloads and disconnects, which comply with the National Electrical Code. All electrical switch gear shall be located a minimum distance of 25 feet from the magazine.

6. The heating source for water or steam shall be separated from the magazine by a distance of not less than 25 feet when electric and 50 feet when fuel-fired. The area between the heating unit and the magazine shall be cleared of all combustible materials.

7. The storage of fireworks and fireworks containers in the magazine shall allow uniform air circulation so temperature uniformity can be maintained throughout the stored materials.

325. When lights are necessary inside the magazine, electric safety flashlights or electric safety lanterns shall be used.

a. The authority having jurisdiction may authorize interior lighting of special design for magazines provided that adequate safety is maintained.

326. When ventilation is required in a magazine, sufficient ventilation shall be provided to protect the stored materials in storage for the specific area in which the magazine is located. Stored materials shall be so placed in the magazine as not to interfere with ventilation and shall be stored so as to prevent contact with masonry walls or with any steel or other ferrous metal by means of a non-sparking lattice or equivalent lining.

33. Construction of Magazines

331. Type 1 Magazine. A Type 1 magazine shall be a permanent structure such as a building or an igloo that is bullet-resistant, fire-resistant, theft-resistant, weather-resistant, and ventilated.

a. Walls. Examples of wall construction considered suitable for Type 1 magazines are:

1. Hollow masonry block construction with 8-inch blocks having the hollow spaces filled with well-tamped dry sand or a well-tamped cement/sand mixture.

2. Brick or solid cement block construction 8 inches thick.

3. Wood construction covered with 26-gauge metal having ¾-inch plywood or wood sheathing with a 6-inch space between the exterior and interior sheathing and the space between the sheathing filled with well-tamped dry sand or well-tamped cement/dry sand mixture, with not less than 1-to-8 ratio of cement to sand.

4. Fourteen-gauge metal construction lined with 4 inches of brick, solid cement block or hardwood; or filled with 6 inches of sand.

b. Doors. Examples of door construction considered suitable for Type 1 magazines are:

1. Steel plate ⅜-inches thick lined with four layers of ¾-inch tongue and groove hardwood flooring.

2. Metal plate not less than 14 gauge lined with four inches of hardwood.

c. Roof. The roof of a Type 1 magazine may be constructed of metal not less than 14 gauge; or ¾-inch wood sheathing covered by metal not less than 26 gauge or other noncombustible roofing material. All exposed wood on the exterior including the eaves shall be protected by metal not less than 26 gauge.

d. Ceiling. Where the natural terrain around a Type 1 magazine makes it possible to shoot a bullet through the roof at such an angle that a bullet could strike the explosives stored in the magazine, then either the roof or the ceiling shall be of bullet-resistant construction. A bullet-resistant ceiling may be constructed at the eave line, covering the entire area of the magazine except the space necessary for ventilation. Examples of ceiling construction that are considered bullet-resistant are:

1. A tray having a depth of not less than 4 inches of sand.
2. A hardwood ceiling not less than 4 inches thick.

e. Foundation. The foundation may be of masonry, wood, or metal and shall be completely enclosed except for openings to provide cross ventilation. A wooden foundation enclosure shall be covered on the exterior with not less than 26-gauge metal.

f. Floor. The floor may be constructed of wood or other suitable floor materials. Floors constructed of materials that may cause sparks shall be covered with a surface of nonsparking material or the packages of explosives shall be placed on pallets of nonsparking material. Magazines constructed with foundation ventilation shall have at least a 2-inch air space between the side walls and the edge of the floor.

g. Ventilation. Type 1 magazines shall be ventilated to prevent dampness and heating of stored explosives. Ventilating openings shall be screened to prevent the entrance of sparks. Ventilators in side walls shall be offset or shielded. Magazines having foundation and roof ventilators with the air circulating between the side walls and the floor and between the side walls and the ceiling shall have constructed a wooden lattice lining or equivalent to prevent the packages of explosives from being stacked against the side walls and blocking the air circulation.

h. Locks. Each door of a Type 1 magazine shall be equipped with two mortise locks; or with two padlocks fastened in separate hasps and staples; or with a combination of mortise lock and a padlock; or with a mortise lock that requires two keys to open; or a three-point lock, or equivalent type of lock that secures a door to the frame at more than one point. Padlocks shall be steel having at least five tumblers and at least a 7/16-inch-diameter case-hardened

shackle. All padlocks shall be protected by steel hoods that are installed in a manner to discourage insertion of bolt cutters. Doors that are secured by a substantial internal bolt do not require additional locking devices. Hinges and hasps shall be securely fastened to the magazine and all locking hardware shall be secured rigidly and directly to the door frame.

332. Type 2 Magazine. A Type 2 magazine shall be a portable or mobile structure, such as a box, skid-magazine, trailer or semi-trailer, that is fire-resistant, theft-resistant, weather-resistant, and ventilated. It shall also be bullet-resistant except when used for indoor storage.

a. Type 2 Outdoor Box Magazine

1. The sides, bottom, top and covers or doors of Type 2 outdoor box magazines shall be constructed of metal, lined with at least 4 inches of hardwood or equivalent bullet-resistant material. The floor shall be of wood or other suitable nonsparking floor materials. Floors constructed of ferrous metal shall be covered with a surface of nonsparking material. Magazines with top opening shall have a lid that overlaps the sides by at least 1 inch when in closed position.

2. Type 2 outdoor box magazines shall be supported in such a manner as to prevent the floor from having direct contact with the ground. Small magazines shall be securely fastened to a fixed object to prevent theft of the entire magazine.

3. Hinges, hasps, locks, and locking hardware shall conform to the provisions for Type 1 magazines as specified in Paragraph 331(h).

b. Type 2 Vehicular Magazine

1. The sides and roof shall be not less than 20 gauge metal. The walls shall be lined with 4 inches of brick or solid cement block or hardwood, or 6 inches of sand, or other bullet-resistant material. The exposed interior walls may be lined with wood. The roof shall be protected by a bullet-resistant ceiling meeting the construction requirements for bullet-resistant ceilings in Paragraph 331(d).

2. The doors shall be of metal, lined with not less than 4 inches of hardwood, or a metal exterior with a hardwood inner door not less than 4 inches in thickness.

3. The floors shall be in accordance with the provisions for Type 1 magazines in Paragraph 331(f).

4. The doors shall be locked with at least two padlocks for each door opening, either two padlocks on the exterior door fastened on separate hasps and staples or one padlock on the exterior door and one padlock on the interior door. The padlocks shall be steel having at least five tumblers and at least a 7/16-inch-diameter case-hardened shackle. The padlocks need not be protected by steel hoods. Hinges and hasps shall be securely fastened to the magazine and all locking hardware shall be secured rigidly and directly to the door frame. When unattended, vehicular magazines shall have wheels removed, or be locked with a kingpin locking device, or otherwise be effectively immobilized.

c. Type 2 Indoor Magazine

1. An indoor Type 2 magazine shall be provided with substantial wheels or casters to facilitate removal from a building in an emergency. The cover for the magazine shall have substantial strap hinges and a means for locking. The magazine shall be kept locked except during the placement or removal of explosive materials with one five-tumbler padlock or equivalent.

2. Type 2 indoor magazines shall be painted red and shall bear lettering in white, on top, at least three inches high, "Explosives — Keep Fire Away."

3. Type 2 indoor magazines constructed of wood shall have sides, bottoms, and covers or doors constructed of 2-inch hardwood and shall be well braced at corners. The magazines shall be covered with sheet metal of not less than 20 gauge. Nails exposed to the interior of such magazines shall be countersunk.

4. Type 2 indoor magazines constructed of metal shall have sides, bottoms, and covers or doors constructed of 12-gauge metal and shall be lined inside with a nonsparking material. Edges of metal covers shall overlap sides at least 1 inch.

333. Type 3 Magazine. Type 3 magazines shall be portable structures that are bullet-resistant, fire-resistant, theft-resistant, and weather-resistant.

a. Type 3 magazines shall be equipped with a five-tumbler padlock.

b. Type 3 magazines constructed of wood shall have sides, bottoms, and covers or doors constructed of 4-inch hardwood and shall be well braced at corners. They shall be covered with sheet metal of not less than 20 gauge. Nails exposed to the interior of such magazines shall be countersunk.

c. Type 3 magazines constructed of metal shall have sides, bottoms, and covers or doors constructed of 12-gauge metal and shall be lined inside with a nonsparking material. Edges of metal covers shall overlap sides at least 1 inch.

334. Type 4 Magazine. A Type 4 magazine shall be a permanent, portable, or mobile structure, such as a building igloo, box, semitrailer, or other mobile container that is fire-resistant, theft-resistant, and weather-resistant.

a. Type 4 Outdoor Magazine

1. A Type 4 outdoor magazine shall be constructed of masonry, wood covered with metal, fabricated metal or a combination of these materials. The doors shall be metal or wood covered with metal. Permanent magazines shall be constructed in accordance with those provisions for Type 1 magazines pertaining to: foundations (Paragraph 331(e)); ventilation (Paragraph 331(g)); and locks, hinges, hasps and locking hardware (Paragraph 331(h)). Vehicular Type 4 magazines shall be in accordance with the provisions for Type 2 vehicular magazines for locks, hinges, hasps and locking hardware (Paragraph 332(b)4) and shall be immobilized when unattended (Paragraph 332(b)2).

b. Type 4 Indoor Magazine

1. A Type 4 indoor magazine shall be in accordance with the provisions of a Type 2 indoor magazine (paragraph 332(*d*)).

34. Magazine Operations

341. Storage Within Magazines

a. Magazines shall be in the charge of a competent person at all times who shall be at least 21 years of age, and who shall be held responsible for the enforcement of all safety precautions. The competent person shall keep an up-to-date inventory of the contents of magazines.

b. All magazines containing Class B fireworks or black powder shall be opened and inspected at intervals of not greater than three days to determine whether there has been an unauthorized entry or attempted entry into the magazines; or to determine whether there has been unauthorized removal of the magazines or the contents of the magazines.

c. Magazine doors shall be kept locked, except during the time of placement and removal of stocks or during inspection.

d. Safety rules covering the operations of magazines shall be posted on the interior of the magazine door.

e. Corresponding grades and brands shall be stored together in such a manner that brands and grade marks show. All stocks shall be stored so as to be easily counted and checked.

f. Containers shall be piled in a stable manner.

g. Containers of Class B fireworks shall be laid flat with top side up.

h. Black powder in shipping containers, when stored in magazines with other explosives, shall be segregated. Black powder stored in kegs shall be stored on ends, bungs down, or on side, seams down.

i. Open containers shall be securely closed before being returned to a magazine. Only fiberboard containers may be opened in the magazine. No container without a closed lid may be stored in the magazine.

j. Wooden packages of Class B fireworks or black powder shall not be unpacked or repacked in a magazine nor within 50 feet of a magazine or in close proximity to other explosive materials.

k. Tools used for opening containers of Class B fireworks or black powder shall be constructed of nonsparking material, except that metal slitters may be used for opening fiberboard containers. A wood wedge and a fiber, rubber or wood mallet shall be used for opening or closing wood containers of explosives.

l. Magazines shall be used exclusively for the storage of Class B fireworks and black powder. Metal tools other than nonferrous transfer conveyors, shall not be stored in any magazine containing Class B fireworks or black powder. Ferrous metal conveyor stands may be stored in the magazine when the stands are protected by a coat of paint.

m. Magazine floors shall be regularly swept, kept clean, dry, free of grit, paper, empty used packages and rubbish. Brooms and other cleaning utensils shall not have any spark-producing metal parts. Sweepings from floors of magazines shall be properly disposed of, in accordance with the instructions of the manufacturer.

n. When magazines need interior repairs, all fireworks and black powder shall be removed therefrom and the floors cleaned.

o. In making exterior magazine repairs, when there is a possibility of causing sparks or fire, the fireworks and black powder shall be removed from the magazine.

p. Fireworks and black powder removed from a magazine under repair shall either be placed in another magazine or placed a safe distance from the magazine, where they shall be properly guarded and protected until repairs have been completed. Upon completion of repairs, the fireworks and black powder shall be promptly returned to the magazine.

342. Miscellaneous Safety Precautions

a. Smoking, matches, open flames, spark-producing devices and firearms (except firearms carried by authorized guards) shall not be permitted inside of or within 50 feet of magazines.

b. The land surrounding magazines shall be kept clear of brush, dried grass, leaves and similar combustibles for a distance of at least 25 feet.

c. Combustible materials shall not be stored within 50 feet of magazines.

d. Property upon which magazines are located shall be posted with signs reading "Explosives — Keep Off." Such signs shall be located so as to minimize the possibility of a bullet's traveling in the direction of the magazine if anyone shoots at the sign.

CHAPTER 4. STORAGE OF CLASS C FIREWORKS

41. General Provisions

411. Class C fireworks shall be kept in storage buildings that meet the requirements of this Chapter.

412. Class C fireworks shall be stored in storage buildings unless they are in process of manufacture, being physically handled in the operating process, being used, packaged, or being transported.

413. Storage buildings required by this Chapter shall be constructed in accordance with Article 42.

414. Storage buildings containing Class C fireworks shall be separated from inhabited buildings, passenger railways and public highways, in accordance with Table 1.

415. Storage buildings containing Class C fireworks shall be separated from other storage buildings, magazines and fireworks plant buildings in accordance with Table 2.

42. Construction of Storage Buildings

421. Storage buildings for Class C fireworks may be a building, igloo, box, trailer, semitrailer or other mobile facility. They shall be constructed to resist fire from an outside source and to be weather-resistant and theft-resistant.

422. Storage buildings for Class C fireworks shall be vented, or in the alternative, shall be constructed in such a manner that venting will occur by yielding of weaker parts of the structure under pressure generated by burning fireworks.

423. All storage buildings shall be equipped with locking means for all openings.

424. All doors shall open outward and all exits must be clearly marked. Aisles and exit doors shall be kept free of any obstructions.

425. Only dust-ignitionproof type electrical fixtures shall be used and wiring shall comply with Section 502-4(b) of the National Electrical Code. No wall receptacles are permitted. All light fixtures must have guards.

426. An outside master electrical switch shall be provided at each storage building where electricity is used.

43. Storage Building Operations

431. Storage.

a. Storage buildings shall be in the charge of a competent person at all times who shall be at least 21 years of age, and who shall be held responsible for the enforcement of all safety precautions.

b. Doors shall be kept locked, except during hours of operation.

c. Safety rules covering the operations of storage buildings shall be posted.

d. Containers shall be piled in a stable manner.

e. Class C fireworks shall be stored in their original packaging and in unopened cases or cartons so as to take advantage of the insulation provided by such packaging; provided, however, unpackaged fireworks which have been returned by retailers may be temporarily retained in bins for repackaging.

f. Tools used for opening containers of Class C fireworks shall be constructed of nonsparking material, except that metal slitters may be used for opening fiberboard containers.

g. Storage buildings shall be regularly swept, kept clean, dry, free of grit, paper, empty used packages and rubbish. Brooms and other cleaning utensils shall not have any spark-producing metal parts. Sweepings shall be properly disposed of.

h. When storage buildings need interior repairs, all fireworks shall be removed therefrom and the interior cleaned.

i. In making exterior storage building repairs, when there is a possibility of causing sparks of fire, the fireworks shall be removed from the storage building.

j. Fireworks removed from a storage building under repair shall either be placed in another storage building or placed a safe distance from the storage building, where they shall be properly guarded and protected until repairs have been completed. Upon completion of repairs, the fireworks shall be promptly returned to the storage building.

432. Miscellaneous Safety Precautions

a. Smoking, matches, open flames, spark-producing devices and firearms (except firearms carried by authorized guards) shall not be permitted inside of or within 25 feet of storage buildings.

b. The land surrounding storage buildings shall be kept clear of brush, dried grass, leaves and similar combustibles for a distance of at least 25 feet, unless equivalent protection is provided.

c. Smoking shall not be permitted in storage buildings or within 25 feet of the storage building. There shall be conspicuously posted signs with the words "FIREWORKS — NO SMOKING" in letters not less than four inches high.

CHAPTER 5. TRANSPORTATION OF FIREWORKS ON HIGHWAYS

51. General Provisions

511. In addition to all other applicable requirements set forth in this Code, the transportation of fireworks over all highways shall be in accordance with U. S. Department of Transportation regulations. U.S. Department of Transportation regulations and changes lawfully on file and approved by the U.S. Department of Transportation are hereby adopted as a part of this Code.

512. Fireworks shall not be transported through any prohibited vehicular tunnel, or subway, or over any prohibited bridge, roadway, or elevated highway where such transportation is prohibited.

513. No person shall smoke, carry matches or any other flame-producing device, or carry any unauthorized firearms or loaded cartridges while in or near a motor vehicle transporting, loading or unloading Class B fireworks; or drive, load or unload such vehicle in a careless or reckless manner.

514. Class B fireworks shall not be carried or transported in or upon a public conveyance or vehicle carrying passengers for hire.

515. During loading and unloading fireworks, smoking and open *flame devices are not permitted in the vicinity.*

52. Construction of Transportation Vehicles

521. Vehicles used for transporting fireworks shall be strong enough to carry the load imposed, be in good mechanical condition and have a closed body. All vehicles used for the transportation of fireworks shall have tight floors and any exposed spark-producing metal on the inside of the body shall be covered with wood or other nonsparking materials to prevent contact with packages of fireworks.

53. Placards on Transportation Vehicles

531. A vehicle transporting Class B fireworks, or a combination of Class C and Class B fireworks, shall be placarded with the letters "Explosives B" in red letters on white background in accordance with the regulations of the U. S. Department of Transportation. No exterior markings or placards are required for vehicles transporting only Class C fireworks.

532. Each marking or placard shall consist of letters not less than four inches high, in the color specified, using approximately a $\frac{5}{8}$-inch stroke. The placard shall be larger than the lettering required thereon by at least one inch at the top and bottom sides.

533. Such markings or placards shall be displayed at the front, rear, and on each side of the motor vehicle or trailer, or other cargo-carrying body. The front marking or placard may be displayed on the front of either the truck, truck body, truck tractor or the trailer.

54. Extinguishers for Transportation Vehicles

541. Each motored unit used for transporting fireworks shall be equipped with two fire extinguishers, having a combined rating of at least 2A:10-B:C.

542. Only extinguishers listed or approved by a nationally recognized fire equipment testing laboratory shall be deemed suitable for use.

543. Extinguishers shall be filled and ready for immediate use and located near the driver's seat. Extinguishers shall be examined periodically by a competent person.

55. Inspection of Transportation Vehicles

551. A motor vehicle used for transporting fireworks shall be inspected to determine that it is in proper condition for safe transportation of fireworks by checking the following:

a. Fire extinguishers shall be filled and in working order.

b. All electrical wiring shall be completely protected and securely fastened to prevent short-circuiting.

c. Chassis, motor, pan and underside of body shall be reasonably clean and free of excess oil and grease.

d. Fuel tank and feed line shall be secure and have no leaks.

e. Brakes, lights, horn, windshield wipers, and steering apparatus shall function properly.

f. Tires shall be checked for proper inflation and defects.

g. The vehicle shall be in proper condition in every respect and acceptable for handling explosives and fireworks.

56. Driver Qualifications

561. Vehicles transporting fireworks shall only be driven by and be in the charge of a properly licensed driver, or a qualified representative of the carrier operating the vehicle who is physically fit, careful, capable, reliable, able to read and write the English language, and not addicted to the use, or under the influence of intoxicants, narcotics, or other dangerous drugs that impair the faculties and not less than twenty-one years of age.

57. Vehicle Attendance, Routing, Parking

571. Every motor vehicle transporting any quantity of black powder or Class B fireworks shall, at all times, be attended by a driver or other qualified representative of the motor carrier operating the vehicle. This attendant shall have been made aware of the class of the material in the vehicle and of its inherent dangers, and shall have been instructed in the measures and procedures to be followed in order to protect the public from those dangers. He shall have been made familiar with the vehicle he is assigned to attend, and shall be trained, supplied with the necessary means, and authorized to move the vehicle when required. He shall be familiar with the traffic regulations, with applicable state and Federal regulations concerning fireworks, and with the provisions of this Code.

a. For the purpose of this section, a motor vehicle shall be deemed "attended" only when the driver or other attendant is physically on or in the vehicle, or has the vehicle within his field of vision and can reach it quickly and without any kind of interference; "attended" also means that the driver or attendant is awake, alert and not engaged in other duties or activities which may divert his attention from the vehicle, except for necessary communication with public officers, or representatives of the carrier, shipper or consignee, or except for necessary absence from the vehicle to obtain food or to provide for his physical comfort.

b. However, a vehicle laden with black powder or Class B fireworks may be left unattended in an area where such parking is permitted such as an area complying with the requirements of NFPA No. 498, Standard for Explosive Motor Vehicle Terminals.*

572. Vehicles transporting Class B fireworks shall avoid congested areas and heavy traffic. Where routes through congested areas have been designated by local authorities such routes shall be followed.

*See Appendix A26.

573. Except under one of the conditions specially enumerated below no vehicle transporting Class B fireworks shall be parked before reaching its destination, even though attended, on any public street adjacent to or in proximity to any bridge, tunnel, dwelling, building or place where people work, congregate, or assemble.

1. An emergency.
2. When it is necessary for the driver or other attendant to leave the vehicle to obtain food or provide for his physical comfort.

58. Ignition Sources on Vehicles

581. No spark-producing metal, spark-producing metal tools, oils, matches, firearms, electric storage batteries, flammable substances, acids, oxidizing materials, or corrosive compounds shall be carried in the body of any vehicle transporting Class B fireworks, unless the loading of such hazardous materials complies with U. S. Department of Transportation regulations.

59. Delivery of Fireworks

591. Delivery shall only be made to authorized persons.

CHAPTER 6. QUANTITY-DISTANCE SEPARATION TABLES

Table 1. Minimum Separation Distances of Fireworks Processing Buildings, Fireworks Magazines, and Fireworks Storage Buildings from Inhabited Buildings, Passenger Railways, and Public Highways.[1]

Net Weight of Fireworks[2]	Distance from Passenger Railways and Public Highways[3,4,5]		Distance from Inhabited Buildings[3,4,5]	
	Class C Fireworks	Class B Fireworks[6]	Class C Fireworks	Class B Fireworks[6]
Pounds	Feet	Feet	Feet	Feet
100	25	200	50	200
200	30	200	60	200
400	35	200	70	200
600	40	200	80	208
800	45	200	90	252
1,000	50	200	100	292
2,000	58	230	115	459
3,000	62	296	124	592
4,000	65	352	130	704
5,000	68	400	135	800
6,000	70	441	139	882
8,000	73	509	140	1,018
10,000	75	565	150	1,129
15,000	80	668	159	1,335
20,000	83	745	165	1,490
30,000	87	863	174	1,725
40,000	90	953	180	1,906
50,000	93	1,030	185	2,060
60,000	95	1,095	189	2,190
80,000	98	1,205	195	2,410
100,000	100	1,300	200	2,600
150,000	105	1,488	209	2,975
200,000	108	1,638	215	3,275
250,000	110	1,765	220	3,530

NOTE 1: This Table does not apply to separation distances at fireworks manufacturing buildings, and magazines for storage of Class B fireworks and storage buildings for Class C fireworks. Those separation distances are given in Table 2.

NOTE 2: Net weight is the weight of all pyrotechnic and explosive composition and fuse only.

NOTE 3: See Chapter 1 for definitions of "passenger railways," "public highways" and "inhabited buildings."

NOTE 4: Class B fireworks processing buildings and Class B fireworks magazines, including buildings located on the property of a fireworks plant shall be separated from passenger railways, public highways, and inhabited buildings by a minimum distance of 200 feet except that the separation from hospitals, schools and bulk storages of flammable liquids or flammable gases shall be by a minimum distance of 500 feet.

NOTE 5: The separation distances shall apply to all Class B fireworks except salutes. The separation distances in Table 3 shall apply for salutes. When salutes and Class B fireworks are stored in the same magazine, the net weight of salute is applied to Table 3 and the net weight of Class B fireworks, including the net weight of salutes, is applied to Table 1. Whichever distance is the greater shall determine the separation distances of the magazine.

NOTE 6: All distances in Table 1 are to be applied with or without barricades or screen-type barricades.

Table 2. Minimum Separation Distances at Fireworks Manufacturing Plants

Net Weight Fireworks[1]	Distance of Magazines and Storage Buildings from Process Buildings and Nonprocess Buildings[2, 5]		Distance Between Process Buildings and Between Process and Nonprocess Buildings[3]	
	Class C Fireworks[3]	Class B Fireworks[4]	Class C Fireworks[3]	Class B Fireworks[4]
Pounds	Feet	Feet	Feet	Feet
100	30	30	37	57
200	30	35	37	69
400	30	44	37	85
600	30	51	37	97
800	30	56	37	105
1,000	30	60	37	112
2,000	30	76	37	172
3,000	35	87	48	222
4,000	38	95	60	264
5,000	42	103	67	300
6,000	45	109	72	331
8,000	50	120	78	382
10,000	54	129	82	423

NOTE 1: Net weight is the weight of all pyrotechnic and explosive compositions and fuse only.

NOTE 2: For the purposes of applying the separation distances in Table 2 a process building includes a mixing building, any building in which pyrotechnic or explosive compositions is pressed or otherwise prepared for finishing and assembling, and any finishing and assembling building. A nonprocess building means office buildings, warehouses, and other fireworks plant buildings where no fireworks or explosive compositions are processed or stored.

NOTE 3: Distances apply with or without barricades or screen-type barricades.

NOTE 4: Distances apply only with barricades or screen-type barricades.

NOTE 5: Distances include those between magazines, between storage buildings, between magazines and storage buildings, between magazines or storage buildings from process buildings and nonprocess buildings.

Table 3. Minimum Separation Distances of Magazines for Storage of Black Powder or Class B Salutes from Inhabited Buildings, Highways, and Other Magazines for Storage of Black Powder or Class B Salutes.

American Table of Distances for Storage of Explosives As Revised and Approved by The Institute of Makers of Explosives — November 3, 1971. Distances in feet

EXPLOSIVES		Inhabited Buildings		Public Highways Class 4 to 0		Passenger Railways — Public Highways with Traffic Volume of more than 3,000 Vehicles/Day		Separation of Magazines	
Pounds Over	Pounds Not Over	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded
0	5	70	140	30	60	81	*102	6	12
5	10	80	160	35	70	84	128	8	16
10	20	110	220	45	90	81	102	10	20
20	30	128	256	50	100	93	186	11	22
30	40	140	280	55	110	103	206	12	24
40	50	150	300	60	120	110	220	14	28
50	75	170	340	70	140	127	254	15	30
75	100	190	380	80	160	139	278	18	32
100	125	200	400	80	160	150	300	18	36
125	150	210	420	85	170	159	318	19	38
150	200	235	470	95	190	175	350	21	42
200	250	255	510	105	210	189	378	23	46
250	300	270	540	110	220	201	402	24	48
300	400	295	590	120	240	221	442	27	54
400	500	320	640	130	260	239	478	29	58
500	600	340	680	135	270	253	506	31	62
600	700	355	710	145	290	266	532	32	64
700	800	375	750	150	300	278	556	33	66
800	900	390	780	155	310	289	578	35	70
900	1,000	400	800	160	320	300	600	36	72
1,000	1,200	425	850	165	330	318	636	39	78
1,200	1,400	450	900	170	340	336	672	41	82
1,400	1,600	470	940	175	350	351	702	43	86
1,600	1,800	490	980	180	360	366	732	44	88
1,800	2,000	505	1,010	185	370	378	756	45	90
2,000	2,500	545	1,090	195	390	408	816	48	96
2,500	3,000	590	1,180	205	410	432	864	52	104
3,000	4,000	635	1,270	210	420	474	948	58	116
4,000	5,000	685	1,370	225	450	513	1,026	61	122
5,000	6,000	730	1,460	235	470	546	1,092	65	130
6,000	7,000	770	1,540	245	490	573	1,146	68	136
7,000	8,000	805	1,610	250	500	600	1,200	72	144
8,000	9,000	835	1,670	255	510	624	1,248	75	150
9,000	10,000	865	1,730	260	520	645	1,290	78	156
10,000	12,000	875	1,750	270	540	687	1,374	82	164

Table 3. — Continued

[illegible]		Insulated Buildings		Public Highways Class A to D		Passenger Railways — Public Highways with Traffic Volume of more than 3,000 Vehicles/Day		Separation of Magazines	
Pounds Over	Pounds Not Over	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded	Barricaded	Unbarricaded
[illegible]	14,000	865	1,770	275	550	725	1,446	87	174
14,000	16,000	900	1,800	280	560	756	1,512	90	180
16,000	18,000	940	1,880	285	570	786	1,572	94	188
18,000	20,000	975	1,950	290	580	813	1,626	98	196
20,000	25,000	1,055	2,000	315	630	876	1,752	105	210
25,000	30,000	1,130	2,000	340	680	933	1,866	112	224
30,000	35,000	1,205	2,000	360	720	981	1,962	118	236
35,000	40,000	1,275	2,000	380	760	1,026	2,000	124	248
40,000	45,000	1,340	2,000	400	800	1,068	2,000	129	258
45,000	50,000	1,400	2,000	420	840	1,104	2,000	135	270
50,000	55,000	1,460	2,000	440	880	1,140	2,000	140	280
55,000	60,000	1,515	2,000	455	910	1,173	2,000	145	290
60,000	65,000	1,565	2,000	470	940	1,206	2,000	150	300
65,000	70,000	1,610	2,000	485	970	1,236	2,000	155	310
70,000	75,000	1,655	2,000	500	1,000	1,263	2,000	160	320
75,000	80,000	1,695	2,000	510	1,020	1,293	2,000	165	330
80,000	85,000	1,730	2,000	520	1,040	1,317	2,000	170	340
85,000	90,000	1,760	2,000	530	1,060	1,344	2,000	175	350
90,000	95,000	1,790	2,000	540	1,080	1,368	2,000	180	360
95,000	100,000	1,815	2,000	545	1,090	1,392	2,000	185	370
100,000	110,000	1,835	2,000	550	1,100	1,437	2,000	195	390
110,000	120,000	1,855	2,000	555	1,110	1,479	2,000	205	410
120,000	130,000	1,875	2,000	560	1,120	1,521	2,000	215	430
130,000	140,000	1,890	2,000	565	1,130	1,557	2,000	225	450
140,000	150,000	1,900	2,000	570	1,140	1,593	2,000	235	470
150,000	160,000	1,935	2,000	580	1,160	1,629	2,000	245	490
160,000	170,000	1,965	2,000	590	1,180	1,662	2,000	255	510
170,000	180,000	1,990	2,000	600	1,200	1,695	2,000	265	530
180,000	190,000	2,010	2,010	605	1,210	1,725	2,000	275	550
190,000	200,000	2,030	2,030	610	1,220	1,758	2,000	285	570
200,000	210,000	2,055	2,055	620	1,240	1,782	2,000	295	590
210,000	230,000	2,100	2,100	635	1,270	1,830	2,000	315	630
230,000	250,000	2,155	2,155	650	1,300	1,890	2,000	335	670
250,000	275,000	2,215	2,215	670	1,340	1,960	2,000	360	720
275,000	300,000	2,275	2,275	690	1,380	2,000	2,000	385	770

Notes to American Table of Distances for Storage of Explosives

NOTE 1: "Explosive materials" means explosives, blasting agents, and detonators.

NOTE 2: "Explosives" means any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion. A list of explosives determined to be within the coverage of "18 U.S.C. Chapter 40, Importation, Manufacture, Distribution and Storage of Explosive Materials" is issued at least annually by the Director, Bureau of Alcohol, Tobacco, and Firearms, U.S. Department of the Treasury.

NOTE 3: "Blasting agents" means any material or mixture, consisting of fuel and oxidizer, intended for blasting, not otherwise defined as an explosive: Provided, That the finished product, as mixed for use or shipment, cannot be detonated by means of a number 8 test blasting cap when unconfined.

NOTE 4: "Detonator" means any device containing a detonating charge that is used for initiating detonation in an explosive; the term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses and detonating-cord delay connectors.

NOTE 5: "Magazine" means any building or structure, other than an explosives manufacturing building, used for the permanent storage of explosive materials.

NOTE 6: "Natural Barricade" means natural features of the ground, such as hills, or timber of sufficient density that the surrounding exposures which require protection cannot be seen from the magazine when the trees are bare of leaves.

NOTE 7: "Artificial Barricade" means an artificial mound or revetted wall of earth of a minimum thickness of three feet.

NOTE 8: "Barricaded" means that a building containing explosives is effectually screened from a magazine, building, railway, or highway, either by a natural barricade, or by an artificial barricade of such height that a straight line from the top of any sidewall of the building containing explosives to the eave line of any magazine, or building, or to a point twelve feet above the center of a railway or highway, will pass through such intervening natural or artificial barricade.

NOTE 9: "Inhabited Building" means a building regularly occupied in whole or in part as a habitation for human beings, or any church, schoolhouse, railroad station, store, or other structure where people are accustomed to assemble, except any building or structure occupied in connection with the manufacture, transportation, storage or use of explosives.

NOTE 10: "Railway" means any steam, electric, or other railroad or railway which carries passengers for hire.

NOTE 11: "Highway" means any street or public road. "Public Highways Class A to D" are highways with average traffic volume of 3,000 or less vehicles per day as specified in "American Civil Engineering Practice" (Abbett, Vol. 1, Table 46, Sec. 3–74, 1956 Edition, John Wiley and Sons).

NOTE 12: When two or more storage magazines are located on the same property, each magazine must comply with the minimum distances specified from inhabited buildings, railways, and highways, and, in addition, they should be separated from each other by not less than the distances shown for "Separation of Magazines," except that the quantity of explosives contained in cap magazines shall govern in regard to the spacing of said cap magazines from magazines containing other explosives. If any two or more magazines are separated from each other by less than the specified "Separation of Magazines" distances, then such two or more magazines, as a group, must be considered as one magazine, and the total quantity of explosives stored in such group must be treated as if stored in a single magazine located on the site of any magazine of the group, and must comply with the minimum of distances specified from other magazines, inhabited buildings, railways, and highways.

NOTE 13: Storage in excess of 300,000 lbs. of explosives in one magazine is *generally not* required for commercial enterprises; however, recommendations for storage of quantities greater than 300,000 lbs. in one magazine will be provided upon inquiry.

NOTE 14: This Table applies only to the manufacture and permanent storage of commercial explosives. It is not applicable to transportation of explosives or any handling or temporary storage necessary or incident thereto. It is not intended to apply to bombs, projectiles, or other heavily encased explosives.

For transportation purposes, the Department of Transportation in Title 49 Transportation CFR Parts 1 — 199 subdivides explosives into three classes:

Class A — Maximum Hazard

Class B — Flammable Hazard

Class C — Minimum Hazard

NOTE 15: All types of blasting caps in strengths through No. 8 cap should be rated at 1½ lbs. of explosives per 1,000 caps. For strengths higher than No. 8 cap, consult the manufacturer.

NOTE 16: For quantity and distance purposes, detonating cord of 50 to 60 grains per foot should be calculated as equivalent to 9 lbs. of high explosives per 1,000 feet. Heavier or lighter core loads should be rated proportionately.

APPENDIX A. FEDERAL REGULATIONS: REFERENCES

A1. Federal Regulations

A11. United States Coast Guard Regulations*

Code of Federal Regulations, Title 33, Parts 6 and 126. Coast Guard Port Security Regulations. Requires that an owner or operator of a designated waterfront facility obtain a permit from the Captain of the Port before Class A explosives in any amount may be handled, loaded, discharged and transported on, or over a waterfront facility. The facility operator is also required to notify the Coast Guard Captain of the Port when the quantities of Class B explosives in excess of one ton, or Class C explosives in excess of 10 tons are present on the facility. These safety measures are pursuant to Executive Order 10173 and its amendments — Regulations Relating to the Safeguarding of Vessels, Harbors, Ports and Waterfront Facilities of the United States, enacted on August 9, 1950.

Code of Federal Regulations: Title 33, Parts 6, 126. Protection and Security of Vessels, Harbors, and Waterfront Facilities. Covers handling of explosives or other hazardous cargoes within or contiguous to waterfront facilities.

Code of Federal Regulations: Title 46, Subchapter N, Parts 146–147. Covers explosives or other hazardous articles or substances, and combustible liquids on board vessels.

A12. Hazardous Materials Regulations of the U. S. Department of Transportation

Code of Federal Regulations: Title 49, Chapter I, Parts 170–179. Administered by Hazardous Materials Regulations Board. Covers preparation of hazardous materials for transportation by common carriers by rail freight, rail express, rail baggage, highway or water, construction of containers, packaging, weight, marking, labeling when required, billing, and shippers' certificate of compliance with these regulations; also cars, loading, storage, billing, placarding, and movement thereof by carriers by rail.

Code of Federal Regulations: Title 49, Chapter III, Parts 390–397. Administered by Federal Highway Administration, Bureau of Motor Carrier Safety. Applies to every common carrier by motor vehicle, contract carrier by motor vehicle, and private carrier of

* Available from U. S. Government Printing Office, Washington, D. C. 20401.

property by motor vehicle engaged in interstate or foreign commerce, with respect to the transportation by motor vehicle of explosives and other dangerous articles. Parts 390-397 cover qualifications of drivers, driving rules, parts and accessories for safe operation, recording and reporting accidents, hours of service of drivers, inspection and maintenance of motor vehicles.

A13. Occupational Safety and Health Standards of the U. S. Department of Labor

Code of Federal Regulations: Title 29, Chapter XVII, Part 1950. The Occupational Safety and Health Act of 1970 provides that the Secretary of Labor promulgate as an occupational safety and health standard any national consensus standard, and any established Federal standards, unless he determines that the promulgation of such a standard would not result in improved safety or health for specifically designated employees. This Part contains occupational and health standards which have been found to be national consensus standards or established Federal standards.

A14. Commerce in Explosives Regulations of the U. S. Department of the Treasury

Code of Federal Regulations: Title 26, Part 181. This Part contains regulations promulgated to implement Title XI, Regulations of Explosives of the Organized Crime Control Act of 1970. It contains requirements pertaining to interstate and foreign commerce in explosive materials; licensing of manufacturers and importers of, and dealers in, explosive materials; the issuance of user permits; the conduct of business by licensees and operations by permittees; the storage of explosive materials; the records and reports required by licensees and permittees; relief from disabilities under this Part; and exemptions, unlawful acts, penalties, seizures, and forfeitures.

A2. REFERENCES.

A21. "Code for the Manufacture, Transportation, Storage and *Use of Explosive Materials*," National Fire Protection Association, NFPA No. 495 — 1972.

A22. "Model State Fireworks Law," National Fire Protection Association, NFPA No. 494L — 1964.

A23. "National Electrical Code," National Fire Protection Association, NFPA No. 70 — 1971.

A24. "Guide for Explosion Venting," National Fire Protection Association, NFPA No. 68 — 1954.

A25. "American Table of Distances for Storage of Explosives," Institute of Makers of Explosives, 1971.

A26. "Standard for Explosives Motor Vehicle Terminals," NFPA No. 498 — 1970.

Amendments Adopted in 1974

First five paragraphs of Foreword revised to delete reference to handling of fireworks as a topic covered by the Code and to clarify intent.

In 114 "shipment" changed to "manufacture" and "handling" changed to "storage."

In 15 definition of "Bullet-Sensitive Explosives Material" revised, and definition of "Explosive Material" deleted.

In 211(c) "All explosive materials" changed to read: "All explosive and pyrotechnic compositions."

In 276 requirement for conductive cotton socks added.

In 314(a) "Class B fireworks and other explosive materials" changed to "Class B fireworks."

In 571 sentence requiring familiarity with traffic and other applicable regulations added.

Note 6 added to Table 1 in Chapter 6.

APPENDIX I

CONSUMER PRODUCT SAFETY COMMISSION REGULATIONS

PART 1507—FIREWORKS DEVICES

Sec.
1507.1 Scope.
1507.2 Prohibited chemicals.
1507.3 Fuses.
1507.4 Bases.
1507.5 Pyrotechnic leakage.
1507.6 Burnout and blowout.
1507.7 Handles and spikes.
1507.8 Wheel devices.
1507.9 Toy smoke devices and flitter devices.
1507.10 Rockets with sticks.
1507.11 Party poppers.

AUTHORITY: Sec. 2(q)(1)(B), (2), 74 Stat. 374 as amended 80 Stat. 1304-1305; (15 U.S.C. 1261); sec. 701(e), 52 Stat. 1055 as amended; (21 U.S.C. 371(e)); sec. 30(a), 86 Stat. 1231; (15 U.S.C. 2079(a)).

SOURCE: 41 FR 22935, June 8, 1976, unless otherwise noted.

§ 1507.1 Scope.

This part 1507 prescribes requirements for those fireworks devices (other than firecrackers) not otherwise banned under the act. Any fireworks device (other than firecrackers) which fails to conform to applicable requirements is a banned hazardous substance and is prohibited from the channels of interstate commerce. Any fireworks device not otherwise banned under the act shall not be a banned hazardous substance by virtue of the fact that there are no applicable requirements prescribed herein.

§ 1507.2 Prohibited chemicals.

Fireworks devices shall not contain any of the following chemicals:

(a) Arsenic sulfide, arsenates, or arsenites.

(b) Boron.

(c) Chlorates, except:

(1) In colored smoke mixtures in which an equal or greater amount of sodium bicarbonate is included.

(2) In caps and party poppers.

(3) In those small items (such as ground spinners) wherein the total powder content does not exceed 4 grams of which not greater than 15 percent (or 600 milligrams) is potassium, sodium, or barium chlorate.

(d) Gallates or gallic acid.

(e) Magnesium (magnesium/aluminum alloys, called magnalium, are permitted).

(f) Mercury salts.

(g) Phosphorus (red or white). Except that red phosphorus is permissible in caps and party poppers.

(h) Picrates or picric acid.

(i) Thiocyanates.

(j) Titanium, except in particle size greater than 100-mesh.

(k) Zirconium.

§ 1507.3 Fuses.

(a) Fireworks devices that require a fuse shall:

(1) Utilize only a fuse that has been treated or coated in such manner as to reduce the possibility of side ignition. Devices such as ground spinners that require a restricted orifice for proper thrust and contain less than 6 grams of pyrotechnic composition are exempted from § 1507.3(a)(1).

(2) Utilize only a fuse which will burn at least 3 seconds but not more than 6 seconds before ignition of the device.

(b) The fuse shall be securely attached so that it will support either the weight of the fireworks device plus 8 ounces of dead weight or double the weight of the device, whether is less, without separation from the fireworks device.

§ 1507.4 Bases.

The base or bottom of fireworks devices that are operated in a standing upright position shall have the minimum horizontal dimensions or the diameter of the base equal to at least one-third of the height of the device including any base or cap affixed thereto.

§ 1507.5 Pyrotechnic leakage.

The pyrotechnic chamber in fireworks devices shall be sealed in a manner that prevents leakage of the pyrotechnic composition during shipping, handling, and normal operation.

§ 1507.6 Burnout and blowout.

The pyrotechnic chamber in fireworks devices shall be constructed in a manner to allow functioning in a normal manner without burnout or blowout.

§ 1507.7 Handles and spikes.

(a) Fireworks devices which are intended to be hand-held and are so labeled shall incorporate a handle at least 4 inches in length (see § 1500.14(b)(7)). Handles shall remain firmly attached during transportation, handling and full operation of the device, or shall consist of an integral section of the device at least four inches below the pyrotechnic chamber.

(b) Spikes provided with fireworks devices shall protrude at least 2 inches from the base of the device and shall have a blunt tip not less than ⅛-inch in diameter of ⅛-inch square.

§ 1507.8 Wheel devices.

Drivers in fireworks devices commonly known as "wheels" shall be securely attached to the device so that they will not come loose in transportation, handling, and normal operation. Wheel devices intended to operate in a fixed location shall be designed in such a manner that the axle remains attached to the device during normal operation.

§ 1507.9 Toy smoke devices and flitter devices.

(a) Toy smoke devices shall be so constructed that they will neither burst nor produce external flame (excluding the fuse and firstfire upon ignition) during normal operation.

(b) Toy smoke devices and flitter devices shall not be of such color and configuration so as to be confused with banned fireworks such as M-80 salutes, silver salutes, or cherry bombs.

(c) Toy smoke devices shall not incorporate plastic as an exterior material if the pyrotechnic composition comes in direct contact with the plastic.

§ 1507.10 Rockets with sticks.

Rockets with sticks (including skyrockets and bottle rockets) shall utilize a straight and rigid stick to provide a direct and stable flight. Such sticks shall remain straight and rigid and attached to the driver so as to prevent the stick from being damaged or detached during transportation, handling, and normal operation.

§ 1507.11 Party poppers.

Party poppers (also known by other names such as "Champagne Party Poppers," and "Party Surprise Poppers,") shall not contain more than 0.25 grains of pyrotechnic composition. Such devices may contain soft paper or cloth inserts provided any such inserts do not ignite during normal operation.

WARNING (OR CAUTION)

FLAMMABLE (or EMITS SHOWERS OF SPARKS, if more descriptive).
Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Place on level surface.
Light fuse and get away.

(ii) *California candles.*

WARNING (OR CAUTION) EMITS SHOWERS OF SPARKS

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Hold in hand at bottom of tube.
Point away from body so that neither end points toward body.

(iii) *Spike and handle cylindrical fountains.*

(A) *Spike fountains.*

WARNING (OR CAUTION) EMITS SHOWERS OF SPARKS

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.

WARNING (OR CAUTION) EMITS SHOWERS OF SPARKS

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Hold in hand—point away from body.
Light fuse.

(iv) *Roman Candles.*

WARNING (OR CAUTION) SHOOTS FLAMING BALLS

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Stick butt end in ground.
Do not hold in hand.
Light fuse and get away.

(v) *Rockets with sticks.*

WARNING (OR CAUTION) FLAMMABLE

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Place in wooden trough or iron pipe at 75° angle, pointing away from people or flammable material.
Do not hold in hand.
Light fuse and get away.

(vi) *Wheels.*

WARNING (OR CAUTION) FLAMMABLE (OR EMITS SHOWERS OF SPARKS, IF MORE DESCRIPTIVE)

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Attach securely by means of a nail through the hole (or place on hard flat surface, for ground spinners).
Light fuse and get away.

(vii) *Illuminating torches.*

WARNING (OR CAUTION) FLAMMABLE (OR EMITS SHOWERS OF SPARKS, IF MORE DESCRIPTIVE)

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Hold in hand—point away from body, clothing, or other flammable material (or place upright on level ground. Do not hold in hand, if more descriptive).
Light fuse (or light fuse and get away, if more descriptive).

(viii) *Sparklers.*

WARNING (OR CAUTION) FLAMMABLE

On the side, front, back, top, or bottom panel.

CAUTION

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Do not touch glowing wire (or do not touch hot plastic, wood, etc., if more descriptive).
Hold in hand with arm extended away from body.
Keep burning end or sparks away from wearing apparel or other flammable material.

(ix) *Mines and shells.*

WARNING (OR CAUTION) EMITS SHOWERS OF SPARKS (OR SHOOTS FLAMING BALLS, IF MORE DESCRIPTIVE)

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Place on hard smooth surface (or place upright on level ground, if more descriptive).
Do not hold in hand.
Light fuse and get away.

(x) *Whistles without report.*

WARNING (OR CAUTION) FLAMMABLE

SHOOTS WHISTLE IN AIR (if applicable)
Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Do not hold in hand.
Light fuse and get away.

(xi) *Toy smoke devices and flitter devices.*

WARNING (OR CAUTION) FLAMMABLE (OR EMITS SHOWERS OF SPARKS, IF MORE DESCRIPTIVE)

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Do not hold in hand.
Light fuse and get away.

(xii) *Helicopter-type rockets.*

WARNING (OR CAUTION) FLAMMABLE (OR EMITS SHOWERS OF SPARKS, IF MORE DESCRIPTIVE)

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Place on hard, open surface.
Light fuse and get away.

WARNING (OR CAUTION) FLAMMABLE

Use only under [close] adult supervision. (Use of the word close is optional.)
Do not point either end toward face or other person.
Hold in hand—jerk string.

(xiv) *Missile-type rockets.*

WARNING (OR CAUTION) FLAMMABLE (OR EMITS SHOWERS OF SPARKS, IF MORE DESCRIPTIVE)

Use only under [close] adult supervision. (Use of the word close is optional.)
For outdoor use only.
Place on hard, open surface.
Light fuse and get away.

(xv) *Labeling—General.* Any fireworks device not required to have a specific label as indicated above shall carry a warning label indicating to the user where and how the item is to be used and necessary safety precautions to be observed. All labels required under this section shall comply with the requirements of § 1500.121 of these regulations.

[38 FR 27012, Sept. 27, 1973, as amended at 41 FR 22934, June 8, 1976]

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